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PLANTING

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RURAL ORNAMENT

ON

PLANTING

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ON
PLANTING
AND
RURAL ORNAMENT.

A
PRACTICAL TREATISE,

BY MR. MARSHALL.

THE THIRD EDITION.

IN TWO VOLUMES.

VOL. II.

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OF THE

SECOND VOLUME.

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An INDEX *to the English Names, and other Non-Linnean Terms, in the Alphabet of Plants.*

INTRODUCTION.

FOR a Book of Reference, the DICTIONARY form is the most convenient. This part of our Work is entirely of that Nature; we have therefore adopted an alphabetical arrangement. Our reasons for making use of the Linnean names, as the ground-work of this arrangement, are manifold: a great number of the plants here treated of, have no English generic name belonging to them: yet it was necessary, to that conciseness and simplicity which is the basis of our plan, to arrange them agreeably to their respective genera; because, in general, the individuals of the same genus have similar appearances and similar propensites, which being placed together, in one point of view, their description and mode of culture are rendered infinitely more easy and compendious, than they could possibly be, if treated of, separately, under distinct and detached species. Besides, even many of the species, now common in our ornamental grounds and shruberies, have not yet had any English name given to them; and there are many more, whose English names are local and unsettled; whereas the Linnean names are the same every where, and are known to the whole world*.

We do not mean to enter into the dispute about the Sexual System of Linneus: it is enough for our purpose, that it is at present, the prevailing system; and that, being founded in nature, its principles can never be overturned: we are, nevertheless, so far from thinking it a *perfect* system, that we believe it capable of very great improvement: at present, however, it is our business to take it as we find it; and for the use of such of our readers as are unacquainted with its principles, it is proper that we should here give its outline.

Every PERFECT FLOWER has four principal parts, which, in general, are obvious to the naked eye; namely, the CALYX, or outer guard; the COROLLA, or coloured leaves; the STAMINA; and the PISTILLUM. The calyx is evident in the moss rose; being those elegant rough leaves which inclose the blushing beauties of the flower: it is also conspicuous in the primrose; being the angular tube out of which the more delicate parts of the flower issue. The corolla of the primrose is the yellow ornament which, by unbotanical observers, is itself considered as the flower. The stamina are conspicuous in most flowers, and are distinguished by the farina or dust, with which they are covered. In the primrose, they proceed from the inside of the tube of the corolla; and, when matured, form themselves into a circle round the top of the tube. The pistillum, in the primrose, is the delicate white pillar, which, rising from the bottom of the tube of the corolla, shews its flatted top in the middle of the stamina and in the center of the flower. According to Linneus, the calyx is an expansion of the outer bark; the corolla, of the inner bark; the stamina, of the wood; and the pistillum, of the pith of the plant; and according to his Sexual System, the stamen is the male, and the pistillum the female, part of generation.

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* An Alphabet of English Names will be given at the end this Volume.

Whether this last is or is not a fact, in nature, has been the subject of much dispute. But, to the FLORAL SYSTEM, it is a matter of no great importance. The parts themselves, and not their functions, are the basis of the Linnean system; and we are clear in our opinion, that if that great man had considered his System, as being what it in reality is, merely FLORAL, without having unfortunately clogged it with the idea of SEXUAL, he would have saved himself a host of enemies, and would, beyond a doubt, have rendered his

System infinitely more simple and scientific, and consequently more useful, than it really is. But it is now too late to regret: his System is established; and himself no more. Having, however, said thus much, it would be unpardonable in us not to add, that, whether we consider his genius, his perseverance, or the System he has formed, nothwithstanding its imperfections, he died one of the greatest characters the world has known.

The VEGETABLE KINGDOM is divided, by LINNEUS, into twentyfour CLASSES: these Classes are subdivided into ORDERS; the Orders into GENERA; the Genera into SPECIES; and the Species into VARIETIES.

His principle of Classification is seen in the following

" KEY OF THE SEXUAL SYSTEM.

MARRIAGES of PLANTS.
Florescence.

- *PUBLIC MARRIAGES.*
  Flowers visible to every one.
  - IN ONE BED.
    Husband and wife have the same bed.
    All the flowers hermaphrodite: stamens and pistils in the same flower.
    - WITHOUT AFFINITY.
      Husbands not related to each other.
      Stamens not joined together in any part.
      - WITH EQUALITY.
        All the males of equal rank.
        Stamens have no determinate proportion of length.
        - 1. ONE MALE.
        - 2. TWO MALES.
        - 3. THREE MALES.
        - 4. FOUR MALES.
        - 5. FIVE MALES.
        - 6. SIX MALES.
        - 7. SEVEN MALES.
        - 8. EIGHT MALES.
        - 9. NINE MALES.
        - 10. TEN MALES.
        - 11. TWELVE MALES.
        - 12. TWENTY MALES.
        - 13. MANY MALES.
      - WITH SUBORDINATION.
        Some males above others.
        Two stamens are always lower than the others.
        - 14. TWO POWERS.
        - 15. FOUR POWERS.
    - WITH AFFINITY.
      Husbands related to each other.
      Stamens cohere with each other, or with the pistil.
      - 16. ONE BROTHERHOOD.
      - 17. TWO BROTHERHOODS.
      - 18. MANY BROTHERHOODS.
      - 19. CONFEDERATE MALES.
      - 20. FEMININE MALES.
  - IN TWO BEDS.
    Husband and wife have separate beds.
    Male flowers and female flowers in the same species.
    - 21. ONE HOUSE.
    - 22. TWO HOUSES.
    - 23. POLYGAMIES.
- CLANDESTINE MARRIAGES.
  Flowers scarce visible to the naked eye.
  - 24. CLANDESTINE MARRIAGES.

His CLASSES are:

I. ONE MALE. (*Mona'ndria.*)
One husband in marriage.
One stamen in an hermaphrodite flower.
II. TWO MALES. (*Dia'ndria.*)
Two husbands in the same marriage.
Two stamens in an hermaphrodite flower.
III. THREE MALES. (*Tria'ndria.*)
Three husbands in the same marriage.
Three stamens in an hermaphrodite flower,
IV. FOUR MALES. (*Tetra'ndria.*)
Four husbands in the same marriage.
Four stamens in the same flower with the fruit.
(*If the two nearest stamens are shorter, it is referred to Class* 14).
V. FIVE MALES. (*Penta'ndria.*)
Five husbands in the same marriage.
Five stamens in an hermaphrodite flower.
VI. SIX MALES. (*Hexa'ndria.*)
Six husbands in the same marriage.
Six stamens in an hermaphrodite flower.
(*If the two opposite stamens are shorter, it belongs to Class* 15.)
VII. SEVEN MALES. (*Hepta'ndria.*)
Seven husbands in the same marriage.
Seven stamens in the same flower with the pistil.
VIII. EIGHT MALES. (*Octa'ndria.*)
Eight husbands in the same marriage.
Eight stamens in the same flower with the pistil.
IX. NINE MALES. (*Ennea'ndria.*)
Nine husbands in the same marriage.
Nine stamens in an hermaphrodite flower.

X. TEN MALES. (*Deca'ndria.*)

Ten husbands in the same marriage.

Ten stamens in an hermaphrodite flower.

XI. TWELVE MALES. (*Dodeca'ndria.*)

Twelve husbands in the same marriage.

Twelve stamens to nineteen *in an hermaphrodite flower.*

XII. TWENTY MALES. (*Icosa'ndria.*)

Generally twenty husbands, often more.

Stamens inserted on the calyx (not on the receptacle*) *in an hermaphrodite flower.*

XIII. MANY MALES. (*Polya'ndria.*)

Twenty males or more in the same marriage.

Stamens inserted on the receptable, *from* 20 *to* 1000 *in the same flower with the pistil.*

XIV. TWO POWERS. (*Didyna'mia.*)

Four husbands, two taller than the other two.

Four stamens: of which the two nearest are largest.

XV. FOUR POWERS. (*Tetradyna'mia.*)

Six husbands, of which four are taller.

Six stamens, of which four are longer, and the two opposite ones shorter.

XVI. ONE BROTHERHOOD. (*Monade'lphia.*)

Husbands, like brothers, arise from one base.

Stamens are united by their filaments † into one body.

XVII. TWO BROTHERHOODS. (*Diade'lphia.*)

Husbands arise from two bases, as if from two mothers.

Stamens are united by their filaments into two bodies.

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* "The base by which the parts of the fructification are connected."

† The *thread* or body of the stamen.

XVIII. MANY BROTHERHOODS. (*Polyade'lphia.*)

Husbands arise from more than two mothers.

Stamens are united by their filaments into three or more bodies.

XIX. CONFEDERATE MALES. (*Syngene'sia.*)

Husbands joined together at the top.

*Stamens are connected by the anthers * forming a cylinder (seldom by the filaments.)*

XX. FEMININE MALES. (*Gyna'ndria.*)

Husbands and wives growing together.

Stamens are inserted in the pistils (not on the receptacle.).

XXI. ONE HOUSE. (*Monœ'cia.*)

Husbands live with their wives in the same house, but have different beds

Male flowers and female flowers are on the same plant.

XXII. TWO HOUSES. (*Diœ'cia.*)

Husbands and wives have different houses.

Male flowers and female flowers are on different plants.

XXIII. POLYGAMIES. (*Polyga'mia.*)

Husbands live with wives and concubines.

Hermaphrodite flowers, and male ones, or female ones in the same species.

XXIV. CLANDESTINE MARRIAGES. (*Cryptoga'mia.*)

Nuptials are celebrated privately.

Flowers concealed within the fruit, or in some irregular manner."

His ORDERS are distinguished by different parts of the flowers, according to the Classes.

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* The *tips* or heads of the stamen.

Those of the first thirteen Classes are taken from the number of females or pistils (reckoning "from the base of the style*; but if there is no "style, the calculation is made from the number "of stigmas"†); as ONE FEMALE (*Monogy'nia*), TWO FEMALES (*Digy'nia*), THREE FEMALES (*Trigy'nia*), &c. Those of the sixteenth, seventeenth, eighteenth, twentieth, twenty-first, and twenty-second Classes, are taken from the number of males, or stamens. Those of the fourteenth, are distinguished by SEEDS NAKED (*Gymnospe'rmia*), and SEEDS CLOATHED (*Angiospe'rmia*). Those of the fifteenth, by the formation of the seed-vessel, or pod; as, WITH SILICLE (*Siliculo'sa*), and, WITH SILIQUE (*Siliquo'sa*). Those of the twenty-third are ONE HOUSE (*Monæ'cia*); TWO HOUSES (*Diæ'cia*); and THREE HOUSES (*Triæ'cia*). Those of the twenty-fourth are FERNS, MOSSES, FLAGS, and FUNGUSSES. Those of the nineteenth Class (consisting chiefly of plants with compound discous flowers, as the thistle, dandelion &c.) are EQUAL, POLYGAMY (*Polyga'mia Equa'lis*); SUPERFLUOUS POLYGAMY (*Polyga'mia Supe'rflua*); FRUSTRANEOUS POLYGAMY (*Polyga'mia Frustra'nea*); NECESSARY POLYGAMY (*Polyga'mia Necessa'ria*); SEPARATE POLYGAMY (*Polyga'mia Segrega'ta*); MONOGAMY (*Monoga'mia*).

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* The *shaft* or body of the pistil.

† The *summits* or heads of the pistil.

The following is Linneus's account (*literally* as it stands in the Lichfield translation) of the Orders last mentioned.

"EQUAL POLYGAMY consists of many marriages with promiscuous intercourse.

That is, *of many florets furnished with stamens and pistils.*

The flowers of these are vulgarly called Flosculous.

SPURIOUS POLYGAMY, where the beds of the married occupy the disk, and those of the concubines the circumference.

That is, *the hermaphrodite florets occupy the disk, and the female florets without stamens surround the border, and that in three manners:*

(*a*) SUPERFLUOUS POLYGAMY, when the married females are fertile, and thence the concubines superflous.

That is, *when the hermaphrodite flowers of the disk are furnished with stigmas, and produce seeds; and the female flowers also, which constitute the circumference, produce seeds likewise.*

(*b*) FRUSTRANEOUS POLYGAMY, when the married females are fertile, and the concubines barren.

That is, *when the hermaphrodite flowers of the disk are furnished with a stigma, and produce seeds; but the florets which constitute the circumference having no stigma, produce no seeds.*

(*c*) NECESSARY POLYGAMY, when the married females are barren, and the concubines fertile.

That is, *when the hermaphrodite flowers, from the defect of the stigma of the pistil, produce no seed; but the female flowers in the circumference produce perfect seeds.*

(*e*) SEPARATE POLYGAMY, when many beds are so united that they constitute one common bed.

That is, *when many flower-bearing calyxes are contained in one common calyx, so as to constitute one flower.*"

His GENERA are taken from the construction of the parts of fructification. All plants, whether herbs, shrubs, or trees, whose flowers and seeds correspond, as to figure and disposition, are of the same GENUS.

His SPECIES are distinguised by the leaves, and other more permanent parts of the plant. Or, it may be said of trees and shrubs, the SPECIES is determined by the natural properties of the seed: for, let the exterior of a plant, or tribe of plants, be what it may, if the seed do not produce near resemblances of the parent stock, but plants whose appearances or properties are different from it (as in the case of apples, pears, &c.); such plants are not considered as forming a distinct SPECIES, but are deemed VARIETIES.

It now only remains to offer, to the *English* reader, a few remarks concerning the due PRONUNCIATION of the LINNEAN TERMS, which we have thought it right to accent, in this EDITION.

A *vowel* when accented, in the second place of syallables from the termination of a word, and followed by a single consonant, is long; as in *A'cer*, *bacca'ta*, *commu'nis*, *gla'ber*, *I'lex*, *ni'gra*, *orienta'lis*, *sempervi'rens*, *villo'sa*, *&c.* *&c.* but, when accented, in the third place, it varies with the quality of the word in which it occurs. In substantives, used as GENERIC TERMS, it is, in this situation, generally short; as in *Be'tula*, *Ce'rasus*, *Cle'matis*, *He'dera*, *Juni'perus*, *Ly'cium*, *Peri'ploca*, *Pla'tanus*, *Po'pulus*, *Robi'nia*, *Ti'lia*:—*Meze'reum* is an exception. On the contrary, in adjectives, used as SPECIFIC TERMS, the vowel, accented in the third place of syllables, is generally long; as in the ordinary terminations, *fo'lius* and *o'ides*, in *arbo'rea*, *austri'acus*, *cæru'lea*, *herba'cea*, *hu'mile*, *lu'tea*, *mono'ica*, *purpu'rea*, *Syri'aca*, *&c.*—*Balsami'fera*, *ladani'fera*, *&c.* *sylva'tica*, *tremula*, *vi'ride*, are exceptions.

The *final e* is pronounced as a syallable, is never *silent*, as in the English language. Thus *Ane'mone*, *campe'stre*, *canade'nse*, *Da'phne*, *ga'le*, *hu'mile*, *officina'le*, *vulga're*, are rendered Anemony, campestry, canadensy, Daphny, galey, humily, officinalcy, vulgarey. If joined with *s*, the *e* in termination has a similar power: as in *A-bi-es*, *Kér-mes*.

Ea are ever pronounced separately, as two syallables; whether in the Substantives *Alce'-a*, *Colute'-a*, *Ite'-a*, *Phillyre'-a* *Staphyle'-a*; or in the Adjectives *acu-le-a'tus*, *arbo're-a*, *capre-a*, *cæru'le-a*, *lu'te-a*, *purpu're-a*, *&c.* *&c.*

The *i*, in the termination of a word, is long as in *crus-galli.*

Oi are separately pronounced, in the termination *oides*, whether the accent be laid on the former or the latter; also in *Be'nzoin*,—*Ben-zo-in.*

The *y*, when accented in the third place of syllables, is short; as in *Cy'tisus*, *Ly'cia*; rendered Cittisus, Lyshia. But different, in the second place; as *Py'rus*, *Sty'rax*, in which the *y* is long.

The letter *c*, in some particular combinations, has the power of the English *sh*; as in *diæ'cia*, *herba'cea*, *Ly'cia*, *monæ'cia*, *Pista'cia*, which correspond, in pronunciation, with Diœshia, Herbashia, Lyshia, Monœshia, Pistashia.

Ch has the power of *k*: thus *Andra'chne*, *Chiona'nthus*, *Dista'chya*, are equivalent in articulation to Andrackny, Kyonanthus, Distackia.

In the ACCENTUATION of the Linnean terms, we have not been inattentive to the labours of the LICHFIELD SOCIETY. We have not, however, followed implicitly their accented catalogues; which, in some particulars, are unintelligible to practical men; and ours is a work intended to convey practical knowledge. We aspire not at a place in the library alone; we are equally ambitious to enjoy the freedom of the morning room, and the Society of its fair inhabitants; and shall not be ashamed if we are found on the dusty table of the planter's seed room.

We have, therefore, endeavoured to retain so much of the established pronunciation of the names of the plants we have treated of, as we think will render them intelligible, in conversation and practice, without giving cause of offence in the closet.

The principal deviations we have judged it right to make from these catalogues, are in the terms *Ane'mone*, *Arbu'tus*, *Colute'a*, *Glyci'ne*, *Hype'ricum*, *Ite'a*, *Phillyre'a*; which, in the lists alluded to stand *Anemo'ne*, *A'rbutus*, *Colu'tea*, *Gly'cine*, *Hyperi'cum*, *I'tea*, *Philly'rea*; Innovations which, we trust, we are warranted in rejecting. Nevertheless, we have brought the terms together, here, to give the reader a favorable opportunity of forming his own judgement, and of correcting with his pen, what he may think we have done amiss.

ALPHABET

OF

PLANTS.

ACER.

LINNEAN Class and Order, *Polygamia Monoecia:* Male flowers containing eight stamens, and hermaphrodite flowers containing eight stamens and one pistil, upon the same plant. There are Eleven SPECIES: Ten of which are natives of, or have been introduced into, this country.

1. A'CER *Pseu'do-pla'tanus:* The SYCAMORE; *a tall deciduous tree;* native of the continent of Europe, but doubtful whether or not of this island.

2. A'CER *Campe'stre:* The COMMON MAPLE; *a low deciduous tree;* common in our woods and hedges.

3. A'CER *Negu'ndo:* the ASH-LEAVED MAPLE; *a deciduous tree;* Native of Virginia and Carolina.

4. A'CER *Platanoi'des:* the NORWAY MAPLE; *a deciduous tree;* native of Norway and the north of Europe.

5. A'CER *Monspesula'num:* the MONTPELIER MAPLE; *a low deciduous tree;* growing common about Montpelier.

6. A'CER *Cre'ticum:* the CRETAN MAPLE; *a low deciduous tree;* native of the East.

7. A'CER *Ru'brum:* the SCARLET MAPLE; *a deciduous tree;* native of Virginia and Pennsylvania.

8. A'CER *Sacchari'num:* the SUGAR MAPLE: *a deciduous tree;* native of Pennsylvania.

9. A'CER *Tarta'ricum:* the TARTARIAN MAPLE; *a low deciduous tree;* native of Tartary.

10 A'CER *Pennsylva'nicum:* the PENNSYLVANIAN MAPLE; or the MOUNTAIN MAPLE; *a tall deciduous shrub;* native of Pennsylvania.

1. The SYCAMORE. This tree grows to a great height and ample size, throwing out a wide-spreading top. Its leaves are vine-shaped; and, on their first appearance, are of a pleasant green; but their beauty soon goes off, being liable to be perforated and disfigured by insects during the summer months, which reduces the value of the Sycamore as an *ornamental:* it has however, long been considered as a *timber tree* in this country, having been much used by the turners for wooden bowls, dishes, trenchers, &c.; but, since the custom of using earthen ware has become so prevalent, its value for this purpose is greatly decreased. Nevertheless, near the sea coast it may be planted with advantage, as it is known to withstand the attacks of the sea air with peculiar hardiness. HANBURY says, The Sycamore being wounded exudes a great quantity of liquor, of which is made good wine. There are two *Varieties* of the Sycamore: one with broad leaves and large keys; the other with variegated leaves.

The PROPAGATION of the Sycamore is very easy. In the autumn, when the keys are ripe, they may be gathered, and in a few days after sown, about an inch and a half deep, in beds of common mould. In the spring the plants will appear, and make a shoot about a foot and a half by the autumn following, if the ground of the seminary be tolerable good, and they are kept clean from weeds. The spring after they come up, they should be planted in the nursery, in rows two feet and a half asunder, and their distance in the rows must be one foot and a half. Here they may remain till they are big enough to plant out finally, with no farther trouble than taking off unsightly side branches, and such as have a tendency to make the tree forked, except digging between the rows, which must always be done every winter. This tree will grow upon almost any soil.

2. The COMMON MAPLE is too well known to need

a description. It is of much humbler growth than the Sycamore; and is by no means ornamental; nor is its timber of a good quality, being peculiarly brittle: The texture however is close and firm, and it is in good esteem amongst the turners. In the vale of Glocester, where oak timber is scarce, Maple is used for gate stuff and other purposes of husbandry; and sometimes screws for cyder presses are made of this wood. But the principal value of the Maple, is for *underwood:* it is of quick growth, and affords good fuel.

The method of PROPAGATION is the same as that of the Sycamore; and, like it, the Maple will grow in almost any soil and situation.

3. The ASH-LEAVED MAPLE grows to a large timber tree: its leaves are of a pale green, and well adapted to give variety of tint; but HANBURY says, this tree is not proper to be planted in exposed situations, the branches being subject to be split off by the winds. Its uses are similar to those of the Sycamore.

It may be propagated from the keys, which are perfected in this country; or by layering; or from cuttings, planted in a moist situation, in autumn.

4. The NORWAY MAPLE. This also grows to a large timber tree. Its leaves are of a shining green colour, and are as large or larger than those of the Sycamore; their edges are acutely and more beautifully indented; they are not so liable to be eaten by insects in the summer; and "in the autumn they die to a golden yellow colour, which causes a delightful effect at that season, when the different tints of the decaying vegetable world are displayed." The flowers are also beautiful; they come out early in the spring, are of a fine yellow colour, and shew themselves to advantage before the leaves come out. They are frequently succeeded by keys, which sometimes arrive at maturity in this climate. There is a *Variety* with striped leaves.

The Norway Maple may be PROPAGATED from seed, as the Sycamore; it may also be raised by layers, and cuttings, planted in a moist soil.

5. MONTPELIER MAPLE grows to about twenty feet high, and is a very beautiful tree. The leaves are composed of three lobes, are of a shining green, a thickish substance, and retain their verdure later in the year than

most of the other sorts. The flowers come out in the spring, but have very little beauty ; their blow is soon over, and sometimes they are succeeded by seeds, which come to perfection in our gardens.

6. CRETAN MAPLE. This grows to about the height of the former. The leaves are downy, composed of three lobes, and grow opposite to each other on long downy footstalks. The flowers come out in the spring, are inconsiderable to the florist, and are very seldom succeeded by good seeds in England.

7. SCARLET-FLOWERING MAPLE. Of this there are two sorts ; called, 1. *Virginian scarlet-flowering Maple* ; and, 2. *Sir Charles Wager's Maple.* Both of these are propagated for the sake of the flowers, which are of a scarlet colour, and come out early in the spring. The leaves are composed each of five sharp-pointed lobes, which are slightly indented or serrated : They are smooth, of a pale green on their upper surface, glaucous* underneath ; and they grow on long, simple, taper, reddish footstalks. The flowers come out in clusters from the side of the branches They appear in April, and the seeds ripen in June. The sort called *Sir Charles Wager's* produces larger clusters of flowers than the others ; on which account it is in most esteem.

8 SUGAR MAPLE is a large growing tree ; will arrive at the height of forty feet ; and has broad thin leaves, divided into five principal parts ; which are again indented or cut at the edges into several acute segments. Their surface is smooth, of a light green colour, whitish underneath ; and they grow on pretty long footstalks. The flowers come out in the spring about the time of the Norway Maple ; and they are succeeded by long keys, which sometimes ripen in England. In America, the inhabitants tap this tree in the spring, boil the liquor, and the fœces afford a useful sugar. The Sycamore, the Ash-leaved and the Norway Maples also abound with a saccharine juice, from which there is no doubt but a useful sugar might be prepared.

9. TARTARIAN MAPLE will grow to upwards of twenty feet high. The leaves are heart shaped undivided, and their edges are unequally serrated. The

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* *Glaucous*, of a sea-green colour

flowers come out from the wings of the leaves in longish bunches; they appear early in the spring; and sometimes are succeeded by ripe seeds in our gardens.

10. MOUNTAIN MAPLE. The *stalks* of this shrub are slender, covered with a whitish bark, send forth several red branches, and grow about fifteen feet high. The leaves are three-lobed, pointed, and are unequally and sharply serrated. The flowers come out in longish bunches, in the spring: They are of a greenish yellow colour; and are succeeded by seeds which (like those of the Norway Maple) generally fall off before they are ripe.

These sorts are all PROPAGATED, 1. by the seeds; but as they do not always ripen in this country, the best way will be to procure them from the places where they naturally grow. A cool shady part of the seminary should be appropriated for the purpose; the mould should be made fine; beds should be marked out four feet wide, and in length proportionable to the quantity; and in these the seeds should be regularly sown, sifting over them about half an inch of the finest mould. When the plants come up, they must be kept clean from weeds, and frequently watered; and this work must be duly attended to all summer. The spring following, the strongest may be drawn out, and planted in the nursery, in rows two feet asunder, and at the distance of a foot from each other in the rows; leaving the others in the seminary to gain strength. The spring following they also must receive the same culture; and in the nursery they may remain, with no other trouble than keeping the ground clean from weeds in the summer, digging between the rows in the winter, and taking off all strong and irregular side shoots, till they are planted out. Trees raised from seeds will grow faster, and arrive at greater height, than those raised from layers; but they will not produce such quantities of flowers; which makes the latter method more eligible for those who want these plants for a low shrubery. 2. By layers all the species of this genus are to be propagated; though it is never practised for the Common Maple and the Sycamore. The young shoots may be at any time laid down in the autumn, winter, or early in the spring. By the autumn following, they will have struck root, and become good plants; when the strongest may be set out in the places where they are to remain; whilst the weakest may be planted in the nursery, like the seedlings, for a year or two, to gain strength. 3. By cuttings also these trees are to be propagated: But this method is chiefly practised on the Ash-leaved and Norway Maples, which more readily take root this way. The cuttings should be the bottom parts of the last year's shoots: They should be taken off early in October, and planted in rows in a moist shady place. The spring and summer following they must be duly watered as often as dry weather makes it necessary, and be kept clean from weeds. By the autumn they will be fit to remove into the nursery; though if the cuttings are not planted too close, they may remain in their situation for a year or two longer, and then be set out finally, without the trouble of being previously planted in the nursery. 4. By budding, grafting, and inarching likewise Maples are to be propagated: But the other methods being more eligible, these are never practised, except for the variegated sorts and the large broad-leaved kind. The latter is to be continued no otherwise than by budding it on stocks of the common Sycamore; for the seeds, though so large themselves, when sown afford you only the common Sycamore in return.

Seeds of the variegated kinds, however, when sown will produce variegated plants in return; which renders the propagation of these sorts very expeditious, where plenty of seeds may be had. Where these are not to be obtained, in order to propagate these varieties by budding, let some plants of the common Sycamore, one year old, be taken out of the seminary, and set in the nursery in rows a yard asunder, and the plants about a foot and a half distance from each other in the rows: Let the ground be kept clean from weeds all summer, and be dug, or, as the gardeners call it, *turned in*, in the winter; and the summer following the stocks will be of a proper size to receive the buds, which should be taken from the most beautifully striped branches. The best time for this work is August; because if it is done earlier, the buds will shoot the same summer; and when this happens, a hard winter will infallibly kill them. Having, therefore, budded your stocks the middle or latter end of August, with the eyes or buds fronting the north, early in October take off the bass matting, which before this time will have confined the bark and pinched the bud, but not so as to hurt it much. Then cut off the stock just above the bud, and dig the ground between the rows. The summer following, keep the ground clean from weeds; cut off all natural side buds from the stock as they come out; and by autumn, if the land is good, your buds will have shot forth, and formed themselves into trees five or six feet high. They may be then removed into the places where they are designed to remain; or a few of them only may be drawn out, leaving the others to be trained up for larger standards, to serve for planting out in open places, or such other purposes as shall be wanting.

The Striped Norway Maple should be budded on stocks of its own kind; for on these they take best, and both kinds are not very liable to run away from their colours. Variegated plants in general must be planted in poor, hungry, gravelly, or sandy soils, to feed the disease which occasions these beautiful stripes, and cause it to be more powerful. But these trees shew their stripes in greater perfection in a good soil: The plant, though in sickness, has the appearance of health; the shoots are vigorous and strong; the leaves are large, less liable to be hurt by insects: and the stripes appear more perfect, natural, and delightful, than those on stunted trees growing on a poor soil.

ÆSCULUS.

LINNEAN Class and Order, *Heptandria Monogynia*: Each flower contains seven *or* eight males and one female [*]: There are only two SPECIES:

1. ÆʹSCULUS *Hippo-caʹstanum*: The ESCULUS or HORSE CHESNUT; *a deciduous tree;* native of Asia.

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[*] The Æsculus is one of the defective genera of Linneus. The *Pavia*, having eight males in each flower, belongs properly to the eighth Class.

2. Æ'SCULUS *Pa'via*: The SCARLET ESCULUS, or SCARLET-FLOWERING HORSE CHESNUT; *a tall deciduous shrub;* native of Carolina, the Brazils, and several parts of the East.

1. HORSE CHESNUT, or COMMON ESCULUS. This is a large well looking tree; growing to seventy or eighty feet high, and throwing out its branches to a considerable width; yet forming a close thickset head; which, if left to nature, takes a most beautifully striking parabolic form. Its leaves are large, palmated, and of a dark green colour: they appear very early in the spring; their buds sometimes beginning to swell so early as Christmas, and anticipate the pleasures of the coming spring. Its flowers are singularly beautiful, standing in large spikes thick among the leaves. This tree is peculiar in a quick formation of its shoots, which are frequently perfected in less than three weeks from the time of foliation; " in which time, " says MILLER, " I have measured shoots a foot and a half long with their leaves fully expanded." For single trees, the Horse Chesnut stands amongst the first of the *ornamental* tribe; and in the spring of the year, when its flowers are out, we know no tree equal to it in beauty. It is improper however to be planted near gardens or kept walks, as it sheds its leaves early in autumn, and, being large and numerous, they create a disagreeable litter. The *uses* of the Esculus are few: its timber is of an inferior kind, and its fruit of no great estimation: deer are said to affect it much; and MILLER says, " in Turkey the nuts of this tree are ground and mixed with the provender for their horses, especially those which are troubled with coughs or are broken winded, in both which disorders they are accounted very good." HANBURY tells us, that swine will fatten upon them; but does not say how they are to be prepared. We have known them offered to hogs raw, also boiled, as likewise baked in an oven, but without success.

The Horse Chesnut is PROPAGATED from the nuts: In autumn, therefore, when they fall, a sufficient quantity should be gathered. These should be sown soon afterwards in drills, about two inches asunder. If the nuts are kept till spring, many of them will be faulty; but where the seminary ground cannot be got ready before, and they are kept so long, it may be proper to put them in water, to try their goodness: The good nuts will sink, whilst those which are faulty will swim; so that by proving them this way you may be sure of good nuts, and have more promising hopes of a crop. In the spring the plants will come up; and when they have stood one year they may be taken up, their tap roots shortened, and afterwards planted in the nursery. When they are of sufficient size to be planted out finally, they must be taken out of the nursery with care, the great side shoots and the bruised parts of the roots should be taken off, and then planted in large holes level with the surface of the ground, at the top of their roots; the fibres being all spread and lapped in the fine mould, and the turf also worked to the bottom. A stake should be placed to keep them safe from the winds, and they must be fenced from the cattle till they are of a sufficient size to defend themselves. The best season for all this work is October. After the trees are planted, neither knife nor hatchet should come near them; but they should be left to Nature to form their beautiful parabolic heads, and assume their utmost beauty.

The Horse Chesnut, like most other trees, delights in good fat land; but it will grow exceedingly well on clayey and marley grounds. It prefers a moist situation.

Miller says, "when these trees are transplanted, their roots should be preserved as entire as possible, for they do not succeed well when torn or cut; nor should any of the branches be shortened, for there is scarce any tree which will not bear amputation better than this; so that when any branches are by accident broken, they should be cut off close to the stem, that the wound may heal over."

2. The Scarlet Esculus grows to about fifteen or sixteen feet high; and there is a delicacy in this tree that makes it desirable. The bark of the young shoots is quite smooth, and the growing shoots in summer are of a reddish hue. The leaves are palmated, being pretty much like those of the Horse Chesnut, only much smaller, and the indentures at the edges are deeper and more acute. The lobes of which they are com-

posed are spear shaped; they are five in number, are united at their base, and stand on a long red footstalk. The leaves grow opposite by pairs on the branches, which are spread abroad on every side. The flowers come out from the ends of the branches. The first appearance of the buds is in May; though they will not be in full blow till the middle of June. They are of a bright red colour, and consequently have a pleasing effect among the vast tribe of yellow flowering sorts which shew themselves in bloom at that season. They continue in succession for upwards of six weeks; and sometimes are succeeded by ripe seeds in our gardens.

There are two ways of PROPAGATING this tree; 1. By budding it upon the young plants of the Horse Chesnut. These stocks should be raised as was directed in that article. They should be planted in the nursery way, a foot asunder, and two feet distant in the rows, which should be kept clean of weeds, and must be dug between every winter till the operation is to be performed. After they have stood in the nursery ground about two years, and have made at least one good summer's shoot, the summer following is the time for the operation. Then having your cuttings ready soon after Midsummer, the evenings and cloudy weather should be made choice of for the work. Whoever has a great number of trees to inoculate, must regard no weather; but keep working on, to get his business over before the season ends; and indeeed, a good hand will be always pretty sure of success, be the weather what it will. If the stocks were healthy, the summer following they will make pretty good shoots; and in a year or two after that will flower. This is one method of propagating this tree; and those plants that are propagated this way will grow to a larger size than those raised immediately from seeds. 2. This tree also may be propagated by seeds; which will sometimes ripen with us, and may be obtained out of our own gardens. The manner of raising them this way is as follows: Let a warm border be prepared; and if it is not naturally sandy, let drift sand be mixed with the soil; and in this border let the seeds be sown in the month of March, about half an inch deep. After this, constant weeding must be observed; and when the plants are come up, if they could be shaded in the heat of the day, it would be much better. These, with now and then a gentle watering in a dry season, will be all the precautions they will require the first summer. The winter following, if the situation is not extremely well sheltered, protection must be given them from the hard black frosts, which will otherwise often destroy them: So that it will be the safest way to have the bed hooped, to cover them with mats in such weather, if the situation is not well defended: if it is, this trouble may be saved; for, even when young, they are tolerable hardy. In about two or three years they may be removed into the nursery, or planted where they are to remain, and they will flower in three or four years after. The usual nursery care must be taken of them when planted in that way; and the best time for planting them there, or where they are to remain, is October; though they will grow exceeding well if removed in any of the winter months; but, if planted late in the spring, they will require more watering, as the ground will not be so regularly settled to the roots, as if they had been planted earlier.

AMORPHA.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being connected at the base in two divisions: There is only one known SPECIES:

AMO'RPHA *Frutico'sa*: BASTARD INDIGO; *a deciduous shrub;* native of Carolina.

THE AMORPHA has its beauties; but it has also ill effects which detract from its value. It is late in the spring before the foliage is fully displayed. The ends of the branches are generally destroyed by the frost; or, if they recover it, they have the appearance of being dead; whilst other plants testify their effects of the reviving months. But notwithstanding these defects, this tree has some other good properties that in part make amends for them. The leaves, when out, which will not be before the middle of May, are admired by all: They are of a pleasant green colour; are very large, beautifully pinnated, the folioles being arranged along the stalk by pairs, and terminate by an odd one. The flowers are of a purple colour, and shew themselves in perfection with us the beginning of July. They grow in spikes, seven or eight inches long, at the ends of the branches, and are of a singular structure. In order to make this tree have its best effect, it should be planted among others of its own growth, in a well-sheltered situation; by which means the ends will not be so liable to be destroyed by the winter's frosts; the branches will not suffer by the violence of the winds; and as it is subject to put out many branches near the root, these indelicacies and imperfections will be concealed; whilst the tree will shew itself to the utmost advantage when in blow, by elevating its purple spiked flowers amongst the others in a pleasing view.

This tree may be PROPAGATED two ways: first, by seeds, which must be procured from America, where the plant is a native; for they do not ripen with us in England. We generally receive the seeds from thence in February: and they should be committed to the ground as soon after as possible. They will grow in almost any soil that is tolerably good; though the more sandy it be, it will be the better. After they are come up, they should have the usual care of seedlings for a year or two, and then be planted, either where they are intended to remain, or else in the nursery, where they will in a year or two make strong plants. This tree may be also propagated by layers; and this operation should be performed the latter end of summer, whilst the sap is in motion; for if it is deferred until winter, the branches are then so exceedingly brittle, that it will be with difficulty they are brought down, without breaking, a proper depth into the earth: Let the utmost care be taken, or many of the young branches that would have made layers will be lost. In summer, then, let the branches be brought down while they are pliable; and by the autumn twelvemonths after they will have taken root, and be fit to remove.

AMYGDALUS.

Linnean Class and Order, *Icosandria Monogynia:* Each flower contains about twenty males and one female: There are four Species; three of which are more particular to our purpose.

1. Amy'gdalus *Commu'nis:* The Common Almond; *a low deciduous tree*; native of Africa.

2. Amy'gdalus *Na'na:* The Dwarf Almond; *a deciduous shrub*; native of Asia Minor.

3. Amy'gdalus *Per'sica:* The Peach; *a low deciduous tree*; of what country is uncertain.

1. The Common Almond will grow to near twenty feet high; and whether planted singly in an open place, or mixed with others in clumps, shrubery quarters, &c. shews itself one of the finest flowering trees in nature. Those who never yet saw it, may easily conceive what a noble appearance this tree must make, when covered all over with a bloom of a delicate red, which will be in March; a time when very few trees are ornamented either with leaves or flowers. No ornamental plantation, therefore, of what sort or kind soever, should be without almond trees. Neither are the beauties of the flowers the only thing desirable in this tree: The fruit would render it worthy of planting, were there no other motive. It ripens well, and its goodness is not unknown to us.

The white flowering Almond, well known in our nurseries, is a *variety* of this species, and is cultivated for the sake of the flowers and the fruit, though the flowers are inferior to the others. Neither is this tree so proper to plant singly in open places, or near windows, for the show of its flowers; for although they come out early, yet the whole bloom is subject to be taken off in one night's nipping weather, which frequently happens at this season. Its station, therefore, should be in shrubery quarters, in well sheltered places; and in such it will flower exceedingly well, and shew its white blossoms to great advantage. When it it designed for fruit, it should be set against a south wall, in a well sheltered place, otherwise there will be little hopes of success.

2. The Dwarf Almond. Of this tree there are two sorts, the single and the double. Both grow to about four or five feet high, and are in the first esteem as flowering shrubs. The single sort has its beauties; but the double kind is matchless. In both, the flowers are arranged the whole length of the last year's shoots; their colour is a delicate red; and they shew themselves early in the spring, which still enhances their value.

3. The Peach tree has hitherto been planted against walls for the sake of the fruit; "but, says Hanbury, as I hardly ever knew a person who was not struck with the beauty of the flowers when in full blow against a wall, why should it not have a share in wilderness quarters and shruberies, amongst the sorts of almonds, &c.? It may be kept down, or permitted to grow to the height of the owner's fancy; and the flowers are inferior to none of the other sorts. Add to this, they frequently, in well sheltered places, produce fruit which will be exceedingly well flavoured; and thus the owner may enjoy the benefit of a double treat." The above observations respect the single peach; with regard to the double flowered, it is generally propagated for ornamental plantations, and is universally acknowledged to be one of the finest flowering trees yet known. Against a wall, however, these trees are always the fairest; and if they have this advantage, they are succeeded by very good fruit.

All these sorts are propagated by inoculating them into plum stocks, in August. The stocks should be first planted in the nursery, when of the size of a straw, and the first or second summer after they will be ready to receive the bud. The usual method of inoculation must be observed, and there is no danger of success; though it may be proper to observe, that the double blossomed peach should always be worked into the stocks of the mussel plum. The two sorts of Dwarf Almond may also be propagated by layers, or from the suckers, which they sometimes send forth in great plenty.

ANAGYRIS.

LINNEAN Class and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There is only one SPECIES:

ANAGY'RIS *Fœ'tida:* The FETID ANAGYRIS, or Stinking Bean Trefoil; *a deciduous shrub*; native of Italy, Sicily, and Spain.

The ANAGYRIS is a shrub of about ten feet growth. The leaves are different in the different varieties: In one sort they are oval, and moderately broad; in the other, they are oblong and narrow; but all of them are hoary. The flowers are produced from the sides of the branches, in May, like those of the *Laburnum.* They are numerous, of a bright yellow colour, but seldom succeeded by good seeds in these parts.

The best method of PROPAGATING these plants, is, 1st, by the seeds, which should be procured from the countries where they ripen well. Sow them in a border of good rich earth, in a well sheltered place, and sift over them about half an inch of fine mould. March is a very good month for this business; and when the plants appear, if the weather proves dry, frequently give them water; keep them clean of weeds all summer, and at the approach of winter prick round the beds some furze bushes very close: These will break the keen edges of the black winds; for common frosts these plants bear moderately well. In the spring let them be set out in the nursery ground, at a foot distance from each other. Here let them stand a year or two, and they will be of a proper size to be finally planted out. 2. These plants may also be propagated by layers. For this purpose, a few plants should be set for stools. Let them grow one summer, to get good hold of the ground, and then head them down. The summer following they will make strong shoots, which in the autumn should be layered. They will readily strike root, and by the autumn following will be good, plants. The weakest of these may be set out in the nursery ground for a season or two; but the strongest may be immediately planted out.

ANDROMEDA.

LINNEAN Class and Order, *Decandria Monogynia*: Each flower contains ten males and one female. There are fifteen SPECIES; three only of which are yet enured to this climate:

1. ANDRO'MEDA *Panicula'ta*: The VIRGINIAN ANDROMEDA; *a deciduous shrub*; native of Virginia.

2. ANDRO'MEDA *Calycula'ta*: The CANADIAN ANDROMEDA; *a low deciduous shrub*; native of Canada, Siberia, and Ingria.

3. ANDRO'MEDA *Maria'na*: The MARYLAND ANDROMEDA; *a very low deciduous shrub*; native of Maryland and other parts of North America.

1. The VIRGINIAN ANDROMEDA is a branching shrub, about four feet high. The leaves are oblong, pointed, plane, and are placed alternately on the branches. The flowers come out in panicles from the ends of the branches: They are of a pale yellow colour, and come out in July, but are rarely succeeded by good seeds in England.

2. CANADA ANDROMEDA is a low branching shrub, hardly a foot and a half high. The leaves are oval, spear shaped, obtuse, reclined on their borders, and possessed of numerous small punctures. The flowers grow in short leafy spikes from the ends of the branches: Their colour is white, they appear in July, and are seldom succeeded by good seeds in this country.

There is a *variety* of this species, with oval obtuse leaves, of a thick substance, and which, in mild seasons, continue on the plants all winter.

3. **Maryland Andromeda.** This is a shrub, about two feet high, sending forth several ligneous stalks from the root. The leaves are oval, entire, of a pale green colour, and grow alternately on short footstalks. The flowers come out in small bunches from the points of the stalk: They are of a greenish colour, come out in June and July, and are sometimes succeeded by five-cornered capsules, full of seeds; which, nevertheless, seldom ripen in England.

Propagation: These plants succeed best upon boggy and moist grounds. You must procure the seeds from the places where they grow naturally; a year before which a boggy or the moistest part of your garden should be dug, and the roots of all weeds cleared off. As the weeds begin to rise, so constantly should the ground be again dug, and sea or drift sand should be plentifully mixed with the natural soil. By this management till the seeds arrive, the ground being made tolerably fine, the seeds should be sown very shallow in the moist or boggy land; or if the land should be so boggy that it cannot be easily worked, so as to be proper for the reception of the seeds, then let a sufficient quantity of soil from a fresh pasture, mixed with drift sand, be laid over the bog, and let the seeds be sown therein. The bog will in time absorb this soil, but the seeds will come up; and this is the most effectual method of procuring plants of this kind from seeds. The first year after they come up they should be shaded in very hot weather; and after that they will require little or no care. Another method of increasing these shrubs is by layers, or suckers; so that whoever has not the conveniency of procuring the seeds from abroad, should get a plant or two of the sorts he most likes: These he should plant in a boggy situation; and in a very little time he will have increase enough; for they throw out suckers in prodigious plenty, and, if they like the situation, to a great distance. These may be taken off, and planted where they are to remain.

ANNONA.

LINNEAN Class and Order, *Polyandria Polygynia*: Each flower contains many males and many females: There are nine species; one only of which is sufficiently hardy for the open air of this climate.

ANNO'NA *Trilo'ba*: The PAPA'W or CUSTARD APPLE; *a tall shrub;* native of the West Indies.

The PAPAW grows to about sixteen or eighteen feet high. The leaves are large, and shaped like a spear, and they fall off pretty early in the autumn. The flowers, which will shew themselves in the beginning of May, are of a kind of chocolate colour tinged with purple, and grow two or three on a footstalk. The fruit is large, and never ripens in England; but in the countries where it grows naturally, it is eaten by the meanest of the inhabitants. The difference of its shape from that of a pear is, that its widest part is nearest the footstalk; and it contains a number of large seeds lying in a row. It is a native of Maryland, Carolina, Virginia, and the Bahama Islands; and from thence we have the seeds brought, by which numbers of plants are annually raised.

The manner of RAISING them is this: Let a bed be prepared in a moistish part, that is exceedingly well sheltered, and naturally sandy, or inclined thereto. If the soil is opposite to this, let a fourth part of drift sand be mixed with the mould; and having obtained the seeds from abroad, sow them in this bed about half an inch deep, letting the seeds be at some distance from each other. It is probable they will come up in the spring, though they sometimes remain till the second, nay the third spring before they make their appearance. When this happens, the beds must be weeded all the time, and the mould at the surface gently loosened, if it should be inclined to crust over. After the plants are come up in the spring, no other than the usual care of seedlings need be taken, until the autumn, when the beds must be hooped over, to be covered with mats at the approach of any frost; and the gardener must constantly observe the weather, whether the air hath the least tendency to it, that he may cover the bed over; for one night's hard frost, while they are so very young, would destroy them all. With this careful eye he must constantly watch over these plants all winter. He must double his covering as the frost increases, and must always uncover them again in mild and open weather. The second winter the same care must be observed, though so strict an eye will not be necessary; for although they will be subject to be destroyed by hard frosts, yet if a gentle frost should catch them unawares to the gardener in the night, there will not be much danger of their suffering; for they will be got tolerably strong by the second summer's shoot: They will, nevertheless, be too tender to stand the brunt of a winter's frost for a year or two after that; and consequently must have a proportional share of this attention every year during these months. By this time the plants will have grown to be tolerably strong, and may be taken up and planted where they are to remain; though their situation should be well defended; for a severe frost in an exposed place would still overpower them; though, after they have grown to be of larger size, they are hardy enough.

If a person has the conveniency of a greenhouse, or some such room, he may sow his seeds in boxes or pots filled with maiden earth, from a rich pasture, mixed with drift sand. These boxes or pots should be afterwards plunged into the natural mould, in a shady part of the garden; and the autumn after the plants are come up, they may be removed into the greenhouse, where they will be naturally protected from the injuries of weather. This protection may be afforded them every winter, till they are strong enough to defend themselves, when they may be turned out of the boxes or pots, mould and all, into the places where they are designed to remain.

ARALIA.

Linnean Class and Order, *Petandria Pentagynia*: Each flower contains five males and five females: There are five Species: only one of which is adapted to our purpose:

Ara'lia *Spino'sa:* The Ange'lica Tree, or Prickly Angelica: *a deciduous shrub*; native of Virginia.

The Prickly Ange'lica: The height to which this tree will grow, if the soil and situation wholly agree with it, is about twelve feet; and the stem, which is of a dark brown colour, is defened by sharp spines, which fall off; nay, the very leaves, which are branching, and composed of many wings, and are of a pleasant geen colour, have these defenders, which are both crooked and strong, and stand as guards to them till the leaves fall off in the autumn. The flowers are produced in large umbels from the ends of the branches: They are of a greenish yellow colour; and their general characters indicate their structure. They make their appearance the end of July or beginning of August; but are not succeeded by ripe seeds in our gardens.

Propagation: This tree will what gardeners call *spawn; i. e.* after digging among the roots young plants will arise, the broken roots sending forth fresh stems; nay, if the roots are planted in a warm border, and shaded in hot weather, they will grow; but if they are planted in pots, and assisted by a moderate warmth of dung, or tanners bark, they will be pretty sure of success; so that the propagation of this tree is very easy. But the general method of propagating it, and by which the best plants may be had, is from seeds, which must be procured from America, for they do not ripen in England; and, after having obtained them, they must be managed in the following manner: The time that we generally receive them is in the spring; so that against their coming we must be furnished with a sufficient number of large pots. These, when the seeds are come, must be filled with fine mould, which, if taken from a rich border, will do very well. The seeds must be sown in these pots as soon as possible after their arrival, hardly half an inch deep, and then the pots should be plunged in a warm place their whole depth in the soil. Care must be taken to break the mould in the pots, and water them as often as it has a tendency to crust over; and if they are shaded in hot weather, the plants will frequently come up the first summer. But as this does not often happen, if the young plants do not appear by Midsummer, the pots should be taken and plunged in a shady place; nay, if they should, there will be still more occasion for this being done; for they will flourish after that better in the shade; and the design of plunging them in a warm place at first was only with a view of setting the powers of vegetation at work, that, having natural heat, artificial shade also may be given them, and water likewise, the three grand necessaries for the purpose. The pots, whether the plants are come up in them or not, should be removed into shelter in October, either into a green house, some room, or under a hotbed frame; and in the spring, when all danger of frost is over, they should be plunged into the natural ground their own depth in a shady place. Those that were already come up will have shot strong by the autumn following; and if none of them have appeared, they will come up this spring; and whether they are young seedlings, or small plants of a former summer's growth, they must be constantly kept clean of weeds, and duly watered in the time of drought; and this care must be observed until the autumn. In October they must be again removed into shelter, either into a greenhouse, &c. as before, or fixed in a warm place, and hooped, that they may be covered with mats in frosty weather. In the latter end of March following, they should be planted in the nursery way, to gain strength before they are finally planted out. The ground for this purpose, besides the natural shelter, should have a reed hedge, or something of the like nature, the more effectually to prevent the piercing winds from destroying the young plants. In this snug place the plants may be set in rows: in each of which rows furze bushes should be stuck the whole length; and all these together will ensure their safety. But here one caution is to be observed; not to stick the furze so thick, but that the plants may enjoy the free air in mild weather, and not to take them away too early in the spring, lest, being kept warm the whole winter, and being deprived of their protection, a cutting frost should happen, as it sometimes does even in April, and destroy them. Weeding and watering in dry weather must be their summer's care. They may be stuck again with furze bushes in the winter; though it will not be necessary to do it in so close a manner; and with this care, still diminishing in proportion the number of furze bushes, they may continue for three or four years, when they may be planted out into the warmest parts of the plantation. With this management these plants will be inured to bear our winters, in well sheltered places.

The spines which grow on the branches, and the leaves admonish us, for our own safety, not to plant this tree too near the sides of frequented walks; and the consideration of the nature of the tree, which is rather tender at the best, directs us (if we have a mind to retain the sort) to plant it in a warm and well sheltered situation; where the piercing frosts, come from what point they will, will lose their edge; for without this, they will be too tender to stand the test of a severe winter; though it has often happened, that after the main stem of the plant has been destroyed, it has shot out again from the root, and the plant by that means been both encreased and preserved.

ARBUTUS.

LINNEAN Class and Order, *Decandria Monogynia*: Each flower contains ten males and one female. There are ten SPECIES; two of which are proper for our purpose.

1. ARBU'TUS *Une'do*: The ARBUTUS, or the COM-

mon Strawberry Tree; *an evergreen tree or shrub;* native of Ireland and many parts of Europe.

2. Arbu'tus *Andra'chne:* The Andrachne; or the Oriental Arbutus; or the Oriental Strawberry Tree; *an evergreen tree or shrub;* native of the East.

1. The Arbutus. Of this species there are four *Varieties:* namely,

The oblong-fruited,
The round-fruited,
The red-flowered, and
The double-blossomed.

One description is nearly common to them all: And their inconsiderable variation is almost sufficiently shewn in their respective appellations.

The oblong-fruited Arbutus will grow to be a middling-sized tree in some countries; for we read of the large uses its wood has been applied to; such as, *Arbutea crates*, &c. Arbutean arrows, &c. With us it is rather a tall shrub, and may be kept down to any size. The main stems are covered with a light brown bark, rough, and falling. The younger branches are of a kind of purple colour, whilst the last year's shoots are of a fine red, and a little hairy. The leaves grow alternately on the branches, and are of an oblong oval figure. They stand on short footstalks, and the oldest leaves make a contrast with the younger by having their footstalk and mid rib of a fine scarlet colour. They are smooth, and beautifully serrated. Their upper surface (as in most trees) is of a stronger green than their under; and the young twigs are garnished with them in plenty. These are beauties in common to most trees, in some degree or other; but every thing else almost of this tree that presents itself to consideration is singular: The time of its flowering will be in November and December; when it is rather singular to see a tree in the open ground in full blow; and the fruit ripens by that time twelvemonth after. The manner and nature of the fruit, which look like very large red strawberries, give it also a singular and delightful look; and this is heightened as they appear all over the tree among the flowers; for that is the time of its being ripe, when the flowers for the succeeding crop are fully out. The flowers themselves make no great figure; they are of a kind of whitish yellow colour; and are succeeded by the abovementioned Strawberry fruit, which will require a revolution of twelve months, before they perfectly arrive at their maturity and colour. The flowers of the first sort are larger than those of the second; and the fruit is oval, and much larger than our Common Scarlet Strawberry.

The round-fruited sort has its pitcher shaped flowers, which are succeeded by round scarlet fruit, as wide as they are long; and this is all the difference between these sorts.

The Strawberry tree with red flowers differs in no respect from the common sort, only the flowers are red, and these constitute a variety from the other sorts of flowers; but the contrast is not so great between their fruit and them, as of the other sorts, their colour approaching too near to a sameness.

The Double-blossomed Strawberry tree differs in no respect, only that the flowers are double; but this difference is so inconsiderable, that it will not be seen without looking into the flower; and even then the doubleness will appear so trifling as scarcely to merit notice; so that a plant or two, to have it said that the collection is not without it, will be sufficient. Neither ought any more to be admitted; for they will not produce the same plenty of fruit, which constitutes the greatest beauty of these trees as the single sorts.

The method of PROPAGATING the *Varieties* of the Arbutus is by layers and cuttings: the *Species* itself may be raised from seed. By layers they will all grow: the operation must be performed on the youngest twigs; and in some soils they will strike root pretty freely, whilst in others they can hardly be made to grow at all: But before they have lain two summers, you may scarcely venture to look for any. When the roots are struck, the layers should be carefully taken off in the spring, and planted in separate pots; and after well watering them, they should be plunged up to the rims in a hotbed, and this will set them forward; for without this assistance, many of the layers will be lost; since they are difficult plants to make grow. After the hotbed has forced the woods into a state of vegetation, the pots may be taken out, and plunged up to the rims in some natural mould, to keep them cool and moist; and here they may stand for two or three years, or longer, if the pots are large enough, without ever removing or sheltering in winter; for they are hardy enough to resist our severest cold. When they are to be finally set out, all the mould may be turned out of the pots hanging to the roots; and having proper holes made ready, they may be planted in them, and the plant will be ignorant of its new situation.

These plants may be encreased by cuttings, which must be planted in pots, and have the benefit of a good bark bed; in which being constantly shaded and duly watered, many of them will grow. As the plants raised this way will be rather tender by being forced in the bark bed, it will be necessary to remove them into the greenhouse, or to place them under a hotbed frame during the first winter: and after that, the pots may be set up to the rims in the ground, and, like the layers, the plants may be turned out at a convenient time into the places where they are to remain.

Next we proceed to the best way of raising the *Common Arbutus;* and that is from seeds. Let these be taken from the oblong or round fruited sort. The seeds, which will be ripe some time in November or the beginning of December, for they will not be ripe at the same time in all places, must be then gathered; and as they should not be sowed until the spring, it will be proper to put them into a pot or jar, mixing with them a quantity of drift sand; and this will preserve them sound and good. The beginning of March is the best time for sowing the seeds; and the best soil for them is maiden earth, taken from a rich pasture at least a year before, with the sward; and this, by constant turning, being well rotted and mixed, will be ready to receive them. Having filled a different quantity of pots with this fine mould, let the seeds be sown, and but just covered, scarcely a quarter of an inch deep. A dry day should be chosen for the business; and no watering by the hand should be given them, as it will endanger the setting the mould hard in the pots. Leave them abroad until some rain falls, which at that time may be hourly expected; and after that, having a hotbed ready, plunge the pots therein. In less than six weeks you may expect your plants to appear; when much air should be afforded them, and frequent waterings, in small quantities, gently sprinkled over them. After this, they may be hardened to the air by degress, and the pots set up to the rims in the natural mould, in a shady place. In October they should be removed into the greenhouse, or some shelter, in frosty weather; though they should always be set abroad in mild open weather. In the spring they may be shook out, and planted in separate pots; and they should have the advantage also of a hotbed to set them a growing: their future management may be the same as was directed for the layers. When these trees are to be planted out, very little regard need be paid to the soil or situation; for they will grow almost any where, and resist our severest northern blasts. One thing, however, the gardener must constantly observe, in order to continue his trees in their beauty; viz. as often as a heavy snow falls, so constantly should he go and shake the boughs; for it will lodge amongst the leaves and branches in such great quantity, as to weigh down and split the largest branches; the deformity of which afterwards may be easily conceived. Besides, many years must expire before the tree will, if ever it should, grow to its former beauty; to preserve this, therefore, makes the narrowly watching these trees in snowy weather highly necessary.

2. The ANDRACHNE will grow to a larger size than the Arbutus. The leaves are smooth, and nearly of the same figure as the preceding sort; though they are larger, and have their edges undivided. The flowers grow like the other sorts; are of the same colour; and they are succeeded by large, oval, scarlet fruit. It is called the Oriental Strawberry Tree, because this sort grows plentifully in many parts of the East, and is useful to the inhabitants for many purposes in life.

The *Andrachne* may be PROPAGATED in the same manner as the *Arbutus*.

ARTEMISIA.

Linnean Class and Order. *Syngenesia Polygamia Superflua:* Hermaphrodite florets containing five males and one female, and female florets containing one pistil, in the same discous flower: There are twenty five Species, which are principally herbaceous; one only being intitled to a place amongst the tribe of ornamentals.

Artemi'sia *Arbore'scens:* **The Tree Wormwood:** *a non-deciduous shrub:* native of Italy and the East.

The Tree Wormwood rises with an upright stalk to the height of about six feet. The leaves are its chief excellence; and of these there are two or three sorts: One sort is very much divided, or cut into several narrow segments; those of the other are broader. They are very hoary; and as they continue on the branches all winter, they have a singular and an agreeable effect among the evergreens at that season. The flowers are small, and have very little beauty; they are collected into roundish heads, and we never perceived them to be followed by good seeds.

This plant is easily **propagated** by cuttings. Plant them in May, June, July, or August, in a shady place, and they will readily grow, especially if they are watered a few times at the first planting. In the autumn these cuttings, which will then have become good plants, should be each set in a separate small pot, and placed under a hotbed frame, or in the greenhouse, to be preserved all winter. In the spring they may be turned out into the places where they are designed to remain, which must be naturally warm and well sheltered, or they will be liable to be destroyed by the severity of the following winter In such a situation they will live for many years; though it may be adviseable to keep a plant or two in the greenhouse, to keep up the stock, if a more than common hard winter should put a period to those that are planted abroad.

ATRIPLEX.

LINNEAN Class and Order, *Polygamia Monœcia*: Hermaphrodite flowers containing five males and one female, and female flowers containing one pistil, on the same plant. There are twelve SPECIES; two only of which are to our purpose.

1. A'TRIPLEX *Ha'limus:* BROAD-LEAVED SEA PURSLAIN TREE: *a non-deciduous shrub;* grows naturally upon the sea coast of Spain and Portugal; as also in Virginia.

2. A'TRIPLEX *Portulaco'ides:* NARROW-LEAVED SEA PURSLAIN TREE; *a non-deciduous shrub;* native of our own sea coast, and of the North of Europe.

1. The BROAD LEAVED PURSLAIN TREE generally grows to about five or six feet; and will send forth its branches so as to spread around, and form a large broad head. The young branches are covered with a smooth white bark: that of the older is of a light gray colour, which will be peeling lengthways, and falling, especially in the spring. The branches are exceedingly brittle, and their inside is green to the very pith, of which there is very little. The leaves are soft, white, and silvery, and nearly of the shape of the Greek letter *Delta*. They have their edges entire; and look well at all times, especially in winter, when they cause as great a variety as possible among those trees that retain their leaves at that time. This shrub seldom flowers in our gardens; and when that happens, it is possessed of no beauty to recommend it to the florist.

2. The NARROW-LEAVED PURSLAIN TREE commonly grows to about four feet high. The branches are numerous and grey; and they naturally spread abroad in a bushy manner. The leaves are silvery; though not so white as the other sort; but they are narrower, which occasions its being so distinguished; and of an oval figure; and by them the shrub receives no small ornament. The flowers have little beauty.

These shrubs are PROPAGATED by cuttings; which will grow, if planted at any time of the year; though the best way is to take the cuttings in March, of the strongest former summer's shoots, to cut them into lengths about a foot each, and to plant them a third part deep in the mould. These will all readily take root, and be good plants by the autumn following. In summer, slips and cuttings may be planted; but then it will be adviseable to plant them pretty close together in beds, and afterwards to hoop the beds, and shade them from the heat at that time. They will soon take root; and after that will require no further trouble: But until that is effected, they should be watered and shaded in the hot weather, and the mats should be constantly taken off in the evening, and also in rainy, moist, or cloudy weather; and by this means plenty of plants may be raised. If it happened to be a dripping day when they were first planted, much trouble in shading and watering will be saved, as they may be nearly upon striking root before the weather clears up. These shrubs should be always raised at a distance from farm yards, barns, &c. where there are sparrows; for these birds are so exceedingly fond of the leaves, that when once they find them out, they will never leave nor forsake them until they have entirely stripped the plants; and though the shrub will shoot out afresh, yet they will as constantly repair to their repast, and will thus continue to prey upon them until they have entirely destroyed them. I am obliged (continues HANBURY) to give this precaution, because all my plants of these sorts are thus constantly eat up by the sparrows in my gardens at Church-Langton, as often as I plant them; so that I am obliged to keep them at Gumley, and in my other distant nurseries, where they remain free from such devourers.

These plants require a warm sheltered situation, being subject to be cut by the early frosts.

AZALEA.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are six SPECIES; two of which are proper for the shrubbery.

AZALE'A *Nudiflo'ra:* The RED AMERICAN UPRIGHT HONEYSUCKLE: or the RED AZALEA; *a deciduous shrub;* native of Virginia.

AZALE'A *Visco'sa:* The WHITE AMERICAN UPRIGHT HONEYSUCKLE: or The WHITE AZALEA; *a low deciduous shrub;* native of Virginia.

1. The RED AZALEA has several stems arising from the same root, which will grow to seven or eight feet high. The leaves are of an oval figure, smooth, entire, and placed alternately on the branches. The flowers are produced in clusters from the sides of the branches, on long naked footstalks: Their colour is red, and they are agreeably scented; each composed of a long naked tube, cut at the top into five spreading segments. They will be in blow in July; but they seldom ripen their seeds in our gardens. There is a variety of this, with yellow flowers.

2. The WHITE AZALEA. From the root of this arise several slender brown stems, to three or four feet high. The leaves are spear shaped, narrow at their base, have a rough border, and grow in clusters. The flowers terminate the branches in clusters, coming out between the leaves. They are finely scented, and each of them has a tube of near an inch long, divided at the top into five segments, two of which are reflexed. Their colour is white, with a bad yellow on their outside; they will be in blow in July, but are never succeeded by seeds in our gardens.

These sorts are PROPAGATED; 1. By layering the young shoots; and for this purpose, a slit must be made on each, as is practised for carnations: the autumn is the best season for the work When the layers have struck good root, they may be removed into the nursery, and planted in lines at a small diſtance from each other; where after having stood a year or two at the most, they will be proper plants to be planted out. 2. These sorts also propagate themselves very fast; for as they throw up many stems from the same roots after they have stood a few years, some of these may easily be taken off, with some root at each, and either planted in the nursery ground, or the places where they are to remain.

BERBERIS.

LINNEAN Class and Order, *Hexandria Monogynia:* Each flower contains six males and one female: There are three SPECIES; two of which are here treated of:

1. BE'RBERIS *Vulga'ris:* The COMMON BERBERY: a well known *deciduous shrub*, common in our hedges.

2. BE'RBERIS *Cre'tica:* The CRETAN, or BOX-LEAVED BERBERY: *a low deciduous shrub;* native of Crete.

1. The COMMON BERBERY. This shrub is distinguished by the acidity of its leaves, the sharpness of its spines, the yellowness of its inner bark, and the scarlet colour of its berries, which add a beauty to our hedges in winter, and afford a favourite pickle and garnish for our tables. HANBURY enumerates other uses of the Berbery, particularly in medicine, and recommends the cultivation of it in the warmest manner. There is, however, an evil attendant on the Berbery bush which ought to confine it within the pale of our gardens and shruberies; we mean its poisonous effect upon corn; more particularly upon wheat. This is a circumstance which has been long known to the common farmers in different parts of the kingdom, especially in Norfolk, where the farmers are more observant and much more enlightened than those useful members of society in general are. The idea, nevertheless, has been treated by theoretical writers on

Husbandry as chimerical and superstitious; and has been brought forward as one of those vulgar errors of farmers which ought to induce gentlemen and men of genius to rescue so useful a science as that of Agriculture out of the hands of ignorance. Being, however, always ready to hear the opinion of *professional* men, and having been assured by many sensible farmers of the truth of this matter, we had a few years ago a Berbery bush planted, in the month of February, in the centre of a large piece of wheat. No obvious effect took place until the corn began to change its colour before harveſt, when a long blackening stripe became so conspicuous amongst the growing whiteness of the wheat, that it might have been distinguished at a mile's distance. It resembled the tail of a comet; the bush representing the comet itself; and what rendered the experiment striking, whilst on one side the effect did not reach more than three or four feet, on the opposite side it was obvious to the distance of ten or twelve yards; notwithstanding the top of the shrub planted was not much larger than the head. At harvest, the ears of wheat which grew in the immediate neighbourhood of the bush, stood erect, the grains shriveled and empty;——as the distance from the Berbery increased the effect lessened, vanishing imperceptibly: whilst the grain of the rest of the field was of a good quality. We do not mean in this place to comment upon the fact, or to attempt to account for so singular an effect by the help of *reasoning* only; having in our intentions a suite of *experiments* in order to endeavour to come at the cause. Our motive for mentioning the fact at present is to induce others to make similar experiments, as well as to stimulate gentlemen to extirpate from their estates so pernicious a plant; more particularly from the hedges and borders of arable fields.

There are three *Varieties* of the Common Berbery:

The Berbery with white fruit.

The Berbery with black fruit.

The Berbery without stones: which last is the sort principally cultivated for the berries.

2. The BOX-LEAVED BERBERY grows to three or four feet high, and is possessed of many sharp spines at the joints. The leaves are like those of the box tree

between which the flowers come out, on slender footstalks. But as this sort never produces any fruit in England, and being also liable to be killed by hard frosts, it is seldom propagated in our gardens.

The PROPAGATION of the Berbery is as follows. 1. When a quantity of the common Berbery is wanted, the best way is to raise it from the seeds, which should be sown, soon after they are ripe, in a bed made in any part of the garden. These will frequently remain till the second spring before the plants come all up; till which time the beds should be weeded as often as the weeds appear; for if they are neglected so as to get strong, by pulling them up many of the seeds will also be drawn out of the bed by their roots. After the plants have grown one year in the seed bed, they should be planted out in the nursery, where they may remain for about two years, when they will be fit to plant out finally. This is the most expeditious method of raising a large quantity of these trees when wanted. 2. Another method of propagating the Berbery is by layers; a method by which all the sorts may be encreased; and in the performance of which, no other art or trouble need be used, than laying the branches down in the ground, without either slit or twist. If this be done any time in the winter, by the autumn following they will have taken good root; the strongest of which layers will be then fit to plant out; whilst those that are weaker may be planted in the nursery ground, to gain strength. 3. The cuttings also of these trees will grow: for if they be planted in October, in a moistish good earth, they will most of them strike root; so that the propagation of this tree by any of these ways is very easy. Whoever is desirous of the Box-leaved Berbery must afford it a warm dry soil, in a well sheltered place. The Common Berbery also dislikes a wet situation.

BETULA.

LINNEAN Class and Order, *Monoecia Tetrandria:* Male flowers containing four stamens, and female flowers containing two pistils, disposed in separate cylindrical catkins upon the same plant. There are five SPECIES.

1. BE'TULA *A'lba:* The COMMON WHITE BIRCH: a well known *deciduous tree;* native of this country, as also of most of the colder parts of Europe.

2. BE'TULA *Ni'gra:* The VIRGINIAN BLACK BIRCH: *a deciduous tree;* native of Virginia, as also of Canada.

3. BE'TULA *Le'nta:* The CANADA BIRCH: *a deciduous tree;* native of Canada, and Virginia.

4. BE'TULA *Na'na:* The DWARF BIRCH: *a deciduous shrub;* native of Lapland, Russia, Sweden, and Scotland.

5. BE'TULA *A'lnus:* The ALDER: a well known aquatic *deciduous tree;* common in our swamps and low grounds; it is also common in most parts of Europe, and in America.

1. The COMMON WHITE BIRCH. This tree is so common, and its uses so well known throughout the kingdom, that any description of it seems unnecessary. It is in general of a humble growth; however, in a soil and situation it affects, it will rise to a great height, and swell to a considerable size. There is a spruceness in its general appearance in summer; and in winter its bark sometimes exhibits, in its variegations of red and white, no inelegant object. Were it not for its being so commonly seen upon poor soils, and in bleak inhospitable situations, as well as for the mean and degrading purposes to which it is universally put, the Birch would have some claim to being admitted to a place among the *ornamentals*. Its *uses* are chiefly for brooms, fuel, and charcoal: if it be suffered to grow to a proper size, it will make tolerable gates, hurdles, rails, &c.: it is also used by the patten-makers. HANBURY says, it is also applicable to larger uses; and is highly proper for the fellies of broad wheel waggons, it being inlocked so as not to be cleaved. "I have been informed (says he) by an old experienced wheelwright, that old Birch-trees cannot be cleft, as the grains run cross-ways, and that he prefers it for several uses in his way to most wood; and as I have seen several of these trees more than two feet square, the timber of the Birch

may perhaps be of more value than it has hitherto been esteemed." Its use in making wine is well known. But although we enumerate the uses to which the Birch is applicable when it is already in possession, we do not mean to recommend in general terms the planting of Birch; except in bleak and barren situations where no other tree will thrive; and except as a skreen and guardian to nurse-up and defend from chilling blasts plants of greater value.

A striking and elegant *variety* of this species of tree is the *Weeping Birch:* not uncommon in the midland counties of England; but most frequent in the Highlands of Scotland; where it often takes a picturable form; being, even in polished scenery, singularly *ornamental.*

It is observable, that in the bleaker districts of the Highlands, the Birch is in a manner necessary to the habitableness of the country. The timber of houses are of Birch; implements of husbandry are of Birch; and Birch is the favourite fuel; its flame being clear, and its smoke less offensive to the eyes, than that of most, or all other woods.

This plant seems to accommodate itself to every situation. It not only flourishes on dry barren mountains, but thrives well in low wet situations.

The PROPAGATION of the Birch is easy: it may be raised either from seeds, or by layering; and it will flourish in almost any soil or situation.

2. The BLACK VIRGINIA BIRCH will grow to upwards of sixty feet in height. The branches are spotted, and more sparingly set in the trees than the common sorts. The leaves are broader, grow on long footstalks, and add a dignity to the appearance of the tree; and as it is naturally of upright and swift growth, and arrives at so great a magnitude, HANBURY thinks it ought to have a share among our forest trees, and to be planted for standards in open places, as well as to be joined with other trees of its own growth in plantations more immediately designed for relaxation and pleasure.

There are several *varieties* of this species, differing in the colour, size of the leaves, and shoots; all of which have names given them by nurserymen, who propagate the different sorts for sale; such as, 1. *The Broad-*

leaved Virginian Birch; 2. *The Poplar-leaved Birch;* 3. *The Paper Birch;* 4. *The Brown Birch, &c.*

3. Canada Birch. This grows to a timber tree of sixty or more feet in height. The leaves are heart-shaped, oblong, smooth, of a thin consistence, pointed, and very shaply serrated. They differ in colour; and the *varieties* of this species go by the names of, 1. *Dusky Canada Birch;* 2. *White Paper Birch;* 3. *Poplar-leaved Canada Birch;* 4. *Low-growing Canada Birch,* &c. The bark of this species it very light, tough, and durable; and the inhabitants of America use it for canoes.

4. Dwarf Birch. This is a low branching shrub, about two feet high. The leaves are round, and their edges are serrated. It hardly ever produces either male or female flowers, and is chiefly coveted when a general collection of plants is making.

The method of propagating all the foreign sorts is, 1. From seeds. We receive the seeds from America, where they are natives; and if we sow them in beds of fine mould, covering them over about a quarter of an inch deep, they will readily grow. During the time they are in the seminary, they must be constantly weeded, watered in dry weather, and when they are one or two years old, according to their strength, they should be planted in the nursery, in rows, in the usual manner. Weeding must always be observed in summer, and digging between the rows in winter; and when the plants are about a yard or four feet high, they will be of a good size to be planted out for the shrubery quarters. A part, therefore, may be then taken up for such purposes; whilst the remainder may be left to grow for standards, to answer such other purposes as may be wanted. 2. These trees may also be propagated by layers; and this is the way to continue the peculiarities in the varieties of the different sorts. A sufficient number of plants should be procured for this purpose, and set on a spot of double-dug ground, three yards distance from each other. The year following, if they have made no young shoots, they should be headed to within half a foot of the ground, to form the stools which will then shoot vigorously the summer following; and in the autumn the young shoots should be plashed near the stools, and the tender twigs layered near their ends. They will then strike root, and become good plants by the autumn following; whilst fresh twigs will have sprung up from the stools, to be ready for the same operation. The layers, therefore, should be taken up, and the operation performed afresh. If the plants designed for stools have made good shoots the first year, they need not be headed down, but plashed near the ground, and all the young twigs layered. Thus may an immediate crop be raised this way; whilst young shoots will spring out in great plenty below the plashed part, in order for layering the succeeding year. This work, therefore, may be repeated every autumn or winter; when some of the strongest layers may be planted out, if they are immediately wanted; whilst the others may be removed into the nursery, to grow to be stronger plants, before they are removed to their destined habitations. 3. Cuttings also, if set in a moist shady border the beginning of October, will frequently grow: But as this is not a sure method, and as these trees are so easily propagated by layers, it hardly deserves to be put in practise.

5. The Alder. This well known aquatic will grow to a large timber tree. The Alder, like the Birch, suffers, as an *ornamental*, from an association of ideas; we not only see it very common, but we see it in low, dreary, dirty situations: nevertheless, if the Alder be suffered to form its own head in an open advantageous situation, it is by no means an unsightly tree: in Stowe Gardens, in what is called the old part, there are some very fine ones; and in coming round from the house by the road leading to Buckingham, there is one which is truly ornamental. Hacked and disfigured in the manner in which Alders in general are, they have but little effect in doing away the unsightliness of a swamp; but if they were suffered to rise in groups and singlets, open enough to have room to form their full tops, and close enough to hide sufficiently the unseemliness of the surface, even a moor or a morass seen from a distance might be rendered an agreeable object. Many *uses* of Alders have been enumerated by authors: they were, indeed, more numerous than they are at present. Leaden pipes have superseded them as pump

set does (like the Gennet-moil Apple-tree) never fail of growing and striking root." **MILLER** recommends truncheons of three feet long, two feet of which to be thrust into the ground. **HANBURY** says, that truncheons are uncertain, and strongly recommends layering; which, for preserving the varieties, at least, is the best method.

BIGNONIA.

LINNEAN Class and Order, *Didynamia Angiospermia:* Each flower contains four males and one female; two of the males being shorter than the other two; and the seeds being inclosed in a pod. There are eighteen **SPECIES**; five of which are enured to this climate.

BIGNO'NIA *Cata'lpa:* The CATALPA; *a deciduous tree;* native of Carolina.

2. BIGNO'NIA *Sempervi'rens:* The EVERGREEN BIGNONIA, or the VIRGINIA JASMINE, or the VIRGINIA CLIMBER; *an evergreen climber;* native of Virginia.

3. BIGNO'NIA *U'nguis:* The CLAW BIGNONIA, or the QUADRIFOLIATE BIGNONIA; *a deciduous climber;* native of Barbadoes, and other West-India Islands.

4. BIGNO'NIA *Capreola'ta:* The TENDRIL BIGNONIA, or the CAPREOLATE BIGNONIA; *a deciduous climber;* native of North America.

5. BIGNO'NIA *Ra'dicans:* The SCARLET TRUMPET FLOWER; *a deciduous climber;* native of Carolina, Virginia, and Canada.

1. The CATALPA will grow to the height of thirty or forty feet; and as the stem is upright, and the leaves fine and large, it should be planted as a standard in the midst of fine openings, that it may without molestation send forth its lateral branches, and shew itself to every advantage in view. These opens, nevertheless, should be such as are well sheltered, otherwise the ends of the branches will be destroyed by the severity of the winter's frost, which will cause an unsightly appearance; and

the leaves, being very large, make such a resistance to the summer's high winds, as to occasion whole branches to be split off by that powerful element. The bark of the Catalpa is brown and smooth, and the leaves are cordated. They are about five or six inches in breadth, and as many in length. They stand by threes at the joints, are of a bluish cast, and are late in the spring before they come out. The flowers are tubulous; their colour is white, having purple spots, and yellowish stripes on the inside. They will be in full blow in August; but are not succeeded by good seeds in England.

Whoever has the conveniency of a bark bed may PROPAGATE this tree in plenty, 1. By cuttings, which being planted in pots, and plunged into the beds in the spring, will soon strike root, and may afterwards be so hardened to the open air, that they may be set abroad in the shade before the end of summer: in the beginning of October, they should be removed into a green-house, or under some shelter, to be protected from the winter's frost. In the spring, after the bad weather is past, they may be turned out of the pots, and planted in the nursery way, in a well sheltered place; and if the soil be rich, and rather inclined to be moist, it will be the better. Here they may stand for four or five years, the rows being dug in winter, and weeded in summer, when they will be of a proper size to be planted out to stand. These cuttings will often grow in a rich, shady, moist border; so that whoever can have plenty of them, should plant them pretty thick in such a place, and he may be tolerably sure, by this way, of raising many plants. 2. From seed, which must be procured from America, and should be sown in a fine warm border of light rich mould, or else in pots or boxes; the seedling plants requiring more than a common care.

2. The EVERGREEN BIGNONIA has almost every perfection to recommend it as a climber; for though the plants are small, yet if they are trained up to a wall, or have bushes or trees on which to climb, they will mount to a great height, by their twining stalks, and over top hedges, and even trees, and will form at a distance a grand figure from the sway they will bear.

The leaves of Bignonia are single, and of a lanceolate figure. They grow from the joints, are of a fine strong green colour, and very ornamental: but the flowers constitute the greatest value of this plant, on account of the fine odour Nature has bestowed on them; which is to so great a degree as to perfume the circumambient air to a considerable distance. These flowers are of a yellow colour, and less beautiful than some of the other sorts, which is sufficiently recompensed by their extraordinary fragrance. They grow in an erect manner, from the wings of the leaves at each joint, and their figure nearly resembles that of a trumpet. The pods that succeed these flowers are small.

There is a *variety* of this species, which over-tops whatever plants are near it, to a great height. The leaves are of a lanceolate figure, and grow from the joints, often four opposite. They are of a fine green; but their flowers are produced rather thinly, and stand each on its own footstalk; and are not possessed of the heightened fragrance of the other.

3. The CLAW BIGNONIA is another noble climber. It rises by the help of claw-like tendrils, the branches being very slender and weak; and by these it will overtop bushes, trees, &c. twenty or thrity feet high. The branches, however, shew their natural tendency to aspire, for they wind about every thing that is near them; so that, together with the assistance Nature has given them of tendrils, it is no wonder they arrive at so great a height. These branches, or rather stalks, have a smooth surface, are often of a reddish colour, particularly next the sun, and are very tough. The tendrils grow from the joints; they are bowed, and are divided into three parts. The leaves grow in pairs at the joints, and are four in number at each. These are of an oblong figure, have their edges entire, and are very ornamental to the plant; for they are of an elegant green colour: their under surface is much paler than their upper, and their footstalks, midrib, and veins, alter to a fine purple. The flowers are monopetalous and bell-shaped. The tube is very large, and the rim is divided and spreads open. They grow from the wings of the leaves in August, two usually at each

joint; and they are succeeded in the countries where they grow naturally by long pods.

4. The **Tendril Bignonia** is another fine climber, which rises by the assistance of tendrils or claspers. The leaves grow at the joints opposite by pairs, though those which appear at the bottom frequently come out singly. They are of an oblong figure, and continue on the plant all winter. The flowers are produced in August, from the wings of the leaves; they are of the same nature, and of the shape nearly of the former; are large, of a yellow colour, and succeeded by short pods.

5. The **Scarlet Trumpet Flower** will arrive to a prodigious height, if it has either buildings or trees to climb up by; for it strikes root from the joints into whatever is near it, and thus will get up to the tops of buildings, trees, &c. be they ever so high. This species has pinnated leaves, which grow opposite by pairs at the joints. These leaves are composed of about four pair of folioles, which end with an odd one. They are of a good green colour, have their edges deeply cut, and drawn out into a long point. The flowers are produced in August, at the ends of the branches, in bunches; they are large, and, like the other, are composed of one tube; but they are shaped more like a trumpet than any of the sorts. They are of a fine red colour, and make a grand show. This is the sort chiefly known by the name of the Scarlet Trumpet Flower.

There is another sort called, the *Smaller Trumpet Flower.* It differs from the last only in that the leaves and flowers are smaller, and some fancy their colour to be a finer red; the colour of the former, in some situations, often approaching to that of an orange colour. These two sorts are more hardy than any of the others, and consequently more proper to be set against old walls, &c. in exposed situations; they will all, however, bear our climate very well; though it would be adviseable to set the tender sorts in well sheltered places, as they will otherwise be in danger of suffering by severe frosts, especially while young, if there be nothing to break them off.

The PROPAGATION of the Climbers. 1. If the shoots are laid upon the ground, and covered with a little mould, they will immediately strike root, and become good plants for setting out where they are wanted. 2. They will all grow by cuttings. The bottom part of the strongest young shoots is the best; and by this method plenty may be soon raised. 3. They are to be raised by seeds; but this is a tedious method, especially of the pinnated-leaved sorts; for it will be many years before the plants raised from seeds will blow.

BUPLEURUM.

LINNEAN Class and Order, *Petandria Digynia*: Each flower contains five males and one female. There are sixteen SPECIES; but they are principally herbaceous: There is only one fit for open grounds in this country.

BUPLEU'RUM *Frutico'sum:* The ETHIOPIAN HARTWORT, or the SHRUBBY BUPLEURUM; *an evergreen shrub;* growing naturally amongst the rocks on the coast of the South of France, and also in some parts of Italy.

The ETHIOPIAN HARTWORT is of low growth; it seldom rises more than eight feet high; and will produce plenty of flowers before it gets to the height of one yard. The bark of the oldest stems is of a brown, that on the younger shoots of a reddish, colour; but that is not constant, for sometimes it will be grayish, at others of a purplish blue. The leaves are of a fine pale green colour, and placed alternately on the branches. They are of an oblong, oval figure, and have their edges entire. They are smooth, and being of a delicate pale green, are very ornamental to the shrub. The flowers are produced from the ends of the branches, in longish umbels. They make no great figure (having but a bad yellow colour); appear in July and August; and are succeeded by seeds, which will often, though not always, ripen with us; and by which, when they do, plenty of plants may be raised.

The method of PROPAGATING this shrub is either from seeds sown in pots of rich light loam in March; or from cuttings, in the following manner: The latter end of July is the time; and if the weather be moist or rainy, so much the better; if not, some beds must be well dug, and made moist by watering. The cuttings should be planted in the evening, and the beds must be hooped, to be covered with mats in the heat of the day. On their being first planted, no sun should come near them; but after they have been set a fortnight, they may have the morning sun until nine o'clock, and afterwards shading; observing always to uncover them in the evening, as also in moist, cloudy, or rainy weather. Many of these cuttings will grow; and in winter it will be proper to protect them from the frost with mats in the like manner: After that they will require no farther trouble until they are planted out.

This evergreen is scarcely hardy enough to struggle with our severest weather; whenever therefore it is introduced into plantations, it should always have the advantage of a dry soil and a well sheltered situation.

BUXUS.

LINNEAN Class and Order, *Monoecia Tetrandria*: Male flowers containing flour stamens, and female flowers containing three pistils upon the same plant. LINNEUS makes only one SPECIES of *Bu'xus* (BU'XUS *sempervi'rens*): of this however there are several *varieties*; some of which in their present state have every appearance of distinct species[*]:

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[*] MILLER says, "The two sorts of Tree Box have been frequently raised from seeds, and constantly produced plants of the same kind with those the seeds were taken from, and the Dwarf Box will never rise to any considerable height with any culture." (Art. BUXUS.)

1. The BROAD-LEAVED TREE BOX: A tall *evergreen shrub;* native of the southern parts of Europe, and, *it is said*, of this island.

2. The NARROW-LEAVED TREE BOX.

3. The Gold-striped Box.

4. The silver striped Box.

5. The Gold-edged Box.

6. The Curled leaved Striped Box.

7. The DWARF Box.

1. The BROAD-LEAVED TREE BOX. This we will consider as the TRUE BUXUS, and the rest as *varieties.* The Box Tree will grow to the height of fifteen or twenty feet. The leaves are smooth and shining, and the branches of a yellowish hue. There is a swelling softness and a peculiar delicacy and richness in the general appearance of the Box, which, in winter more especially, affords the eye a delicious repast. As an *ornamental* it stands first among the evergreens; and its *uses* are very many. Indeed, we know of no shrub or tree whatever, the Oak, the Ash, the Elm, and the Beech excepted, so deserving of the planter's notice as the Box. It will flourish upon barren soils and in bleak situations. The only extensive *plantations* of Box in this kingdom are those upon Box Hill; and the soil there is a poor thin-skinned chalky loam, and the situation high, unsheltered, and bleak in the extreme; yet the plants thrive with great luxuriance. The Box however is by no means partial to poor land and an open country; it thrives in every soil and in the closest situations, being remarkably patient of the shade and drip of other trees: we have seen it in a neglected grove, growing under a perfect canopy of foliage with the same healthfulness and luxuriancy as if it had stood in the open air. This naturally points out a situation and use proper for the Box, which does not seem to have been thought of: we mean that of UNDERWOOD TO THE OAK. Thus employed, what an admirable cover to game; and how friendly to the sportsman! what a delightful passage in cultivated nature; and how profitable to the planter! Box wood is now (1785) worth 16s per cwt.

2. The NARROW-LEAVED TREE BOX. Of this beautiful plant there are some *sub-varieties*, that differ

in the size of their leaves; but it is the smallest-leaved sort that is here meant; and as this sort is not very common, it is valued on that account. It is rather of a lower growth than the former sort, and its branches are more slender and numerous. It forms itself naturally into a regular head, and the whole shrub assumes an air of delicacy. The leaves grow opposite by pairs, as in the other sort; but are produced in great plenty. They are very small and narrow; and their surface is not so shining as the Broad-leaved Box. As the branches and leaves are the only ornament these trees afford, nothing farther need be added to the description of this sort.

3. 4. *The two sorts with striped leaves* are the Common Tree Box variegated; though they have a different appearance in their manner of growth, as well as in their striped leaves. They will grow, indeed, to be as tall; but the branches will be naturally more slender and weaker, and many of them will often hang downwards, which gives the tree a much different appearance from the plain Tree Box, whose branches are naturally straight and upright. The leaves of these sorts being beautifully striped, makes them coveted by those who are fond of variegated trees.

5. *The Gold-edged Box* is still the Tree Box, in the same natural upright growth. The branches of this are not so weak as those of the former sorts, but are upright and strong. Their bark is rather yellower than the green sort: in other respects there is no difference, except that the leaves are tipped or edged with yellow; which is thought by many to be very ornamental to the shurb.

6. *The Curl-leaved Striped Box* is so called on account of its leaves being a little waved. This, together with the Narrow-leaved, is the scarcest of all the sorts; and is indeed, like that, a very elegant shrub. It is certainly a variety of the Common Tree Box; but it seems rather of lower growth. Its leaves are waved; and they are variegated in such a manner as to cause the shrub to have what HANBURY calls a luscious look. It makes a variety from all the other sorts, and is truly beautiful and pleasing.

7. The **Dwarf** Box is a plant so well known as an edging to borders, and through thickets of shrubs, that it needs no description. It may be planted as an evergreen shrub among the lower sorts.

The method of PROPAGATING the Box is perfectly easy: it may be raised from cuttings, or from the seed, or by layering. 1. For planting the cuttings, HANBURY says the month of August is the best time, if any rain falls. If none should happen, then the work must be deferred till it does. Indeed the cuttings may be planted with success any time in the winter, even till the middle of April; but it is most prudent, if the ground is ready, to have this work done as soon as the first autumnal rains fall. These cuttings ought to be of one and two years wood, should be about a foot long, rather more than the half of which must be planted in the ground. A slip of the last year's wood, stripped from an older branch, is an excellent set, of which there will be little fear of its growing. The cuttings for the first raising of these trees should be at about four inches distance in the beds; and, after they are planted, will need no trouble except watering in dry weather, and keeping clean from weeds, till about the third year after planting; for in all that time they will not be got too big for the *seed beds*. The season for transplanting these trees from the *seed beds* to the nursery is any time from August to April, though if they are to be transplanted early in the autumn, or late in the spring, moist weather should be made choice of for this purpose. The distance these plants should be placed at in the nursery must be a foot asunder, and two feet in the rows; and here they may stand till they are planted out. 2. The Box Tree may be also propagated from seeds; and trees raised this way will often grow to a larger size. In order to raise this tree from seeds, let them be gathered when they are quite ripe, and just ready to burst out of their cells, and soon after sow them in a border of light sandy earth, about half an inch deep. In the spring the plants will appear; though it sometimes happens that they lie in the beds one whole season before they come up, especially if they happen to have been kept long before they were sowed after being gathered. If they should not appear in the spring, the beds must remain undisturbed till the next, only keeping them free from weeds, and now and then giving them a gentle watering in dry weather. After they have made their appearance, they should stand two or three years in the seed bed, the first of which will require attendance by watering in dry weather. When they are strong enough to plant out, they may be set in rows in the nursery, as was directed for the cuttings. 3. The Box propagates itself by *layering;* for whether it be borne down by the weight of its own foliage, or be broken down by a fall of snow lodging upon its leaves and branches, it no sooner comes into contact with the ground than it sends forth fibres, and the branch layered (whether by nature, by accident, or by art) presently forms to itself a detached root, which being severed from the main tree, a separate plant is produced.

CALLICARPA.

LINNEAN Class and Order, *Tetrandria Monogynia:* Each flower contains four males and one female. There are two SPECIES; one of which is enured to our climate.

CALLICA'RPA *Americána:* The CALLICARPA; *a low deciduous shrub;* native of many parts of America, but particularly of Virginia and Carolina.

The CALLICARPA. The leaves are roundish, acute, pointed, and are near three inches in length. They are of a hoary cast, being, like the youngest shoots, covered with a kind of woolly matter. They stand opposite by pairs on moderate foostalks, and their edges are made delicate by beautiful small serratures. The flowers are produced in whirls round the twigs at the setting on of the leaves, and are of a reddish-purple colour. Each flower separately is small and inconsiderable; though the whole number of which the whirls are composed form, together with the leaves and nature of the growth of the tree, a singular and pleasing aspect. Their appearance is usually in July, and they are succeeded by succulent berries, which are at first red, and afterwards of a deep purple when ripe.

It is PROPAGATED, 1. By cuttings. When by cuttings, they should be planted, in the spring, in a moist sandy border. As the hot weather comes on, they should be constantly shaded, and watered if the bed is not naturally very moist; and by this means many of the cuttings will strike root, and become good plants. 2. By layers, which is a certain method, these plants may also be increased. If a few plants are obtained for this purpose, they should be planted in a warm well sheltered situation; and if the soil be naturally sandy, it will be the better. The autumn after these stools have shot forth young wood, these young shoots should be laid in the ground, and by the autumn following they will be fit to take off, either for the nursery, or where they are to remain. 3. By seeds, which should be sown in a warm border of sandy earth, a quarter of an inch deep, and should be carefully shaded and the seedlings sheltered; these plants being tender when young, though afterwards they are sufficiently hardy.

CALYCANTHUS.

LINNEAN Class and Order, *Icosandria Polygynia*: Each flower contains twenty males and numerous females. There are two SPECIES; namely, CALYCA'NTHUS *Pre'cox;* not enured, we believe, to this climate; and

CALYCA'NTHUS *Flo'ridus:* The FLOWERING CALYCANTHUS, or CAROLINA ALLSPICE TREE; *a deciduous aromatic shrub*; native of Carolina.

The FLOWERING CALYCANTHUS is a shrub which seldom grows, at least with us, to more than five feet high. It divides into many branches irregularly near the ground. They are of a brown colour, and being bruised emit a most agreeable odour. The leaves that

CARPINUS.

LINNEAN Class and Order, *Monoecia Polyandria*; Male flowers containing many stamens, and female flowers containing two pistils disposed in separate catkins, upon the same plant: There are only two SPECIES:

1. CA'RPINUS *Be'tulus*: The COMMON HORNBEAM: *a deciduous tree;* native of Europe and America.

2. CA'RPINUS *O'strya*: The HOP HORNBEAM; *a low deciduous tree;* native of Italy and of Virginia.

1. The COMMON HORNBEAM. This tree, it is said, will grow so high as sixty or seventy feet: we seldom see it, however, arrive at so great a height. Its leaves are of a darkish green, and about the size of those of the Beech, but more pointed and deeply serrated. Its branches are long, flexible, and crooked; yet in their general appearance very much resemble those of the Beech: indeed there is so great a likeness between those two trees, especially in the shrubby underwood state, that it would be difficult to distinguish them at the first glance, were it not for that glossy varnish with which the leaves of the Beech are strongly marked. In the days of EVELYN, when topiary work was the Gardener's idol, the Hornbeam might be considered as deserving of those *endearing* expressions which that enthusiastic writer has been pleased to lavish upon it: nevertheless, as an *ornamental* in *modern* gardening it stands low; and its *present uses* are few. As an underwood it affords stakes and edders, fuel and charcoal. Its timber ranks with that of Beech and the Sycamore. The only superior excellency of the Hornbeam lies in its fitness for SKREEN-FENCES for sheltering gardens, nurseries, and young plantations from the severities of the winter season. It may be trained to almost any height, and by keeping it trimmed on the sides it becomes thick of branchlets, and consequently thick of leaves; which being by their nature retained upon the

plant after they wither, a Hornbeam hedge occasions a degree of shelter nearly equal to that given by a brick wall. Indeed, being less reflective than that expensive screen, it affords a more uniform temperature of air to the plants which stand near it. In this point of view, too, the Hornbeam is useful to be planted promiscuously, or in alternate rows, amongst more tender plants in exposed situations, in the same manner as the Birch; to which it has more than one preference; namely, it is warmer in winter.—And HANBURY says, the Hornbeam is peculiarly grateful to hares and rabbits; consequently it may prevent their injuring its more valuable neighbours: yet like EVELYN, he seems to be of opinion that it is disaffected by deer. If this be really the case, the Hornbeam may upon many occasions be introduced into deer parks with singular propriety.

The Common Hornbeam may be PROPAGATED either by layering (at almost any time of the year) or from seeds, in the following manner: In the autumn the seeds will be ripe; when having gathered a sufficient quantity for the purpose, let them be spread upon a mat a few days to dry. After this, they should be sown in the seminary ground, in beds four feet wide, with an alley of about two feet, and from one to two inches deep. In this bed they must remain till the second spring before they make their appearance; and all the summer they lie concealed, the weeds should constantly be plucked up as soon as they peep; for if they are neglected they will get so strong, and the fibres of their roots will be so far struck down among the seeds, as to endanger the drawing many seeds out with them, in weeding the ground. After the young plants appear, they should constantly be kept clear of weeds during the next summer; and if they were to be now and then gently refreshed with water in dry weather, it would prove serviceable to them. In the spring following they may be taken out of these beds, and planted in the nursery, in which situation they may remain till they are of a sufficient size to plant out for standards.

Of the Common Hornbeam there are three *Varieties*: The Eastern Hornbeam, *Flowering Hornbeam*, *American Hornbeam*.

The *Eastern Hornbeam* arrives to the least height of all the sorts: about ten feet is the farthest of its growth, and it looks pretty enough with trees of the same growth. The leaves are by no means so large as the common sort; and as the branches are always closer in proportion to the smallness of the leaves, where a low hedge is wanted of the deciduous kind, this would not be an improper tree for the purpose, either to be kept sheered, or suffered to grow in its natural state. The bark of this sort is more spotted than that of the Common.

The *Flowering Hornbeam* is the most free shooter of any of the sorts; and will arrive to be the highest, the Common Hornbeam only excepted. It will grow to be thirty or forty feet high. The branches of this tree are less spotted with grayish spots than any of the other sorts. The leaves are very rough, of a dark green colour, and are longer than the common sort. The property which the Common Hornbeam is possessed of, of retaining its leaves all winter, does not belong to this sort, the leaves of which constantly fall off in the autumn with other deciduous trees.

American Hornbeam is a more elegant tree than any of the former sorts. The branches are slender, covered with a brownish speckled bark, and are more sparingly sent forth than from any of the others. The leaves are oblong, pointed, and of a palish green, and are not nearly so rough as the Common Hornbeam, though the flowers and fruit are produced in the same manner.

2. **HOP HORNBEAM** is of taller growth than the Eastern kind. It will arrive to the height of twenty feet, or more. The leaves are nearly the size of the common sort, and some people admire this tree on account of the singular appearance it makes with its seeds, before they begin to fall. There is a *Variety* of this tree, which grows to thirty feet high, shoots freely, has long rough leaves like those of the elm, and longish yellow coloured flowers, called the *Virginian Flowering Hop Hornbeam*.

These different sorts of Hornbeam are to be **PROPAGATED** by layers: for which purpose a few plants for stools must be procured. The stools of the Eastern Hornbeam should be planted a yard, and the other sorts a yard and a half or two yards asunder. After these plants have made some young shoots, they should be layered in the autumn, and by that time twelvemonth they will have struck root: at which time or any time in the winter, or early in the spring, they should be taken off and planted in the nursery way, observing always to brush up the stool, that it may afford fine young shoots for fresh layering by the autumn following. The distance the plants should be allowed in the nursery need be no more than one foot, in rows that are two feet asunder; and here they may stand, with the usual nursery care of weeding and digging the rows in winter, until they are to be finally planted out; though the Virginian Hornbeam will frequently send forth two shoots, which will seem to strive for mastery in the lead. When this is observed, the weakest should always be taken away, otherwise the tree will grow forked.

CEANOTHUS.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are three SPECIES; one of which will bear the open air of this climate.

CEANO'THUS *America'na*: The NEW-JERSEY TEA, or the REDTWIG; *a low deciduous shrub;* native of North America.

The NEW-JERSEY TEA. The height to which it will grow in our country is about a yard. The stem, which is of a pale brown colour, sends out branches from the bottom. These are thin, flexible, and of a reddish colour, which may have occasioned this tree to go by the name of *Redtwig*. The leaves which ornament these branches stand on reddish pedicles, about half an inch in length. They are oval, serrated, pointed, about two inches and a half long, are proportionably broad, and have three nerves running lengthways. From the footstalk to the point they are of a light green colour, grow irregularly on the branches, and not opposite by pairs, as has been asserted. They are late in the spring before they shoot. The flowers grow at the ends of the twigs in clusters: They are of a white colour, and when in blow give the shrub a most beautiful appearance. Indeed, it seems to be almost covered with them, as there is usually a cluster at the end of nearly every twig; and the leaves which appear among them serve as ornaments only, like myrtle in a distant nosegay: nature however has denied them smell. This tree will be in blow in July; and the flowers are succeeded by small brownish fruit, in which the seeds will sometimes ripen in England.

The PROPAGATION of this plant is by layering; or from seeds sown in pots of compost consisting of two parts virgin earth well tempered, and one part sand, about a quarter of an inch deep; being equally careful to defend the young seedlings from an extremity of cold in winter as from the parching drought of the summer months. The best time of layering them is in the summer, just before they begin to flower: At that time lay the tender twigs of the spring shoots in the earth, and nip off the end which would produce the flowers. By the autumn twelvemonth some of them will be rooted. At the stools, however, the plants should remain until the spring, when they should be taken off, and the best rooted and the strongest may be planted in the nursery way, or in a dry soil and well sheltered place, where they are to remain; while the bad rooted ones and the weakest should be planted in pots; and if these are plunged into a moderate warmth of dung, it will promote their growth, and make them good plants before autumn. In the winter they should be guarded against the frosts; and in the spring they may be planted out where they are to remain.

CELASTRUS,

Linnean Claſs and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are eleven Species; two of which are to our purpoſe.

1. Cela'strus *Bulla'tus*: The Staff Tree; *an uncertain deciduous ſhrub*; native of Virginia.

2. Cela'strus *Sca'ndens*: The Climbing Staff Tree, or Bastard Euonyms; *a climber*; native of Canada.

1. The Staff Tree is a ſhrub of about four feet in growth, riſing from the ground with ſeveral ſtalks, which divide into many branches, and are covered with a browniſh bark. The leaves are of a fine green colour, and grow alternately on the branches. They are of an oval figure, and have their edges undivided. The flowers are produced in July, at the ends of the branches, in looſe ſpikes. They are of a white colour, and in their native countries are ſucceeded by very ornamental ſcarlet fruit; but with us this ſeldom happens.

It is eaſily propagated from ſeeds ſown, about an inch deep, in beds of good freſh mould made fine. They ſeldom come up until the ſecond, and ſometimes not before the third ſpring. This ſpecies is alſo propagated by layers; and, to be conciſe, the work muſt be performed on the young wood, in the autumn, by a ſlit at the joint. These layers may be expected to ſtrike root by the autumn following, when they may be taken up and planted in the nurſery ground. This ſhrub muſt have a well ſheltered ſituation, otherwiſe the leaves are apt to fall off at the approach of froſty weather. And Miller ſays, that, growing naturally in moiſt places, it will not thrive well in a dry ſoil.

2. The Climbing Staff Tree. The ſtalks are woody, twining, and will riſe by the help of neighbouring trees or buſhes to the height of twelve feet. The leaves are oblong, ſerrated, of a pleaſant green colour, pale, and veined underneath, and grow alternately on

the branches. The flowers are produced in small bunches, from the sides of the branches, near the ends. They are of a greenish colour, appear in June; and are succeeded by roundish, red, three-corned capsules, containing ripe seeds, in the autumn.

The plant is exceedingly hardy, and makes a beautiful appearance among other trees in the autumn, by their beautiful red berries, which much resemble those of the Spindle-tree, and will be produced in vast profusion on the tops of other trees, to the height of which these plants by their twisting property aspire. They should not be planted near weak or tender trees, to climb on; for they embrace the stalks so closely as to bring on death to any but the hardiest trees and shrubs.

It is PROPAGATED, 1. By laying down the young shoots in the spring. By the autumn they will have struck root, and may then be taken off and set in the places where they are designed to remain. 2. They are also propagated by seeds. These should be sown soon after they are ripe, otherwise they will be two, and sometimes three years before they come up. When they make their appearance, nothing more need be done than keeping them clear from weeds all summer and the winter following; and in the spring the strongest plants may be drawn out, and set in the nursery for a year, and then removed to the places where they are designed to remain; whilst the weakest, being left in the seed-bed one year more, may undergo the same discipline.

CELTIS.

LINNEAN Class and Order, *Polygamia Monoecia*. Hermaphrodite flowers, containing five stamens and two pistils, and male flowers containing five stamens. There are three SPECIES.

1. CE'LTIS *Austra'lis*: The SOUTHERN CELTIS, or the BLACK-FRUITED NETTLE TREE, or LOTE TREE; *a deciduous tree*; native of Africa and the South of Europe.

2. Ce'ltis *Occidenta'lis:* The Western Celtis, or the Purple-fruited or Occidental Nettle Tree; *a deciduous tree;* native of Virginia.

3. Ce'ltis *Orienta'lis:* or the Eastern Cel'tis; or the Yellow-fruited or Oriental Nettle Tree; *a deciduous shrub;* native of Armenia.

1. The Southern Celtis.

2. The Western Celtis.

These two species grow with large, fair, straight stems; their branches are numerous and diffuse: their bark is of a darkish gray colour; their leaves are of a pleasant green, three or four inches long, deeply serrated, and in a narrow point, nearly resemble the leaves of the common stinging nettle, and continue on the trees till late in the autumn: So that one may easily conceive what an agreeable variety these trees would make. Add to this, their shade is admirable. The leaves are late in the spring before they shew themselves; but they make amends for this, by retaining their verdure till near the close of autumn, and then do not resemble most deciduous trees, whose leaves shew their approaching fall by the change of their colour; but continue to exhibit themselves of a pleasant green, even to the last.

Hanbury speaks highly of the Celtis as a timber-tree: he says, "The wood of the Lote Tree is extremely durable. In Italy they make their flutes, pipes, and other wind instruments of it. With us the coachmakers use it for the frames of their vehicles." Miller mentions also the wood of the *Occidentalis* being used by the coachmakers.

The two species of Tree Celtis are propagated from seeds, which ripen in England, if they have a favourable autumn; but the foreign seeds are the most certain of producing a crop. These seeds should be sown soon after they are ripe, either in boxes, or in a fine warm border of rich earth, a quarter of an inch deep: and in the following spring many of the young plants will appear, though a great part often lie till the second spring before they shew their heads. If the seeds in the beds shoot early in the spring, they should be hooped, and protected by mats from the frosts, which would nip them in the bud. When all danger from frosts is over, the mats should be laid aside till the parching beams of the sun get powerful; when, in the day time, they may be laid over the hoops again, to screen the plants from injury. The mats should be constantly taken off every night, and the young plants should never be covered either in rainy or cloudy weather. During the whole summer, these seedlings should be frequently watered in dry weather, and the beds kept clean of weeds, &c. In the autumn, they must be protected from the frosts, which often come early in that season, and would not fail to destroy their tops. The like care should be continued all winter, to defend them from the same enemies. In this seminary they may remain, being kept clean of weeds and watered in dry weather, till the end of June, when they should be taken out of their beds, and planted in others at six inches distance. And here let no one (continues HANBURY) be startled at my recommending the month of June for this work; for I have found by repeated experience that the plants will be then almost certain of growing, and will continue their shoots till the autumn; whereas I have ever perceived, that many of those planted in March have frequently perished, and that those which did grow made hardly any shoot that year, and shewed the early figure of a stunted tree. In June, therefore, let the ground be well dug, and prepared for this work; and let the mould be rich and good: But the operation of removing must be deferred till rain comes; and if the season should be dry, this work may be postponed till the middle of July. After a shower, therefore, or a night's rain, let the plants be taken out of their beds, and pricked out at six inches distance from each other. After this, the beds in which they are planted should be hooped, and covered with mats when the sun shines; but these must always be taken away at night, as well as in rainy or cloudy weather. With this management, they will have shot to a good height by the autumn, and have acquired so much hardiness and strength as to need no farther care than to be kept clear of weeds for two or three years; when they may be planted out in places where they are to remain, or set in the nursery, to be trained up for large standards.

The best season for planting out these standard trees is the latter end of October, or beginning of November; and in performing that operation, the usual rules must be observed with care.

The soil for the Lote-tree should be light, and in good heart; and the situation ought to be well defended, the young shoots being very liable to be destroyed by the winter's frosts.

3. The EASTERN CELTIS. The height to which this ſpecies will grow is no more than about twelve feet; and the branches are many, smooth, and of a greenish colour. The leaves are smaller than those of the other sorts, though they are of a thicker texture, and of a lighter green. The flowers come out from the wings of the leaves, on slender footstalks: They are yellowish, appear early in the spring, and are succeeded by large yellow fruit.

The CULTURE of this ſpecies is the same, and the plants may be raised in the same manner as the other two sorts; only let this all along have a peculiarly dry soil, and a well sheltered situation, otherwise it will not bear the cold of our winters.

CEPHALANTHUS.

LINNEAN Class and Order, *Tetrandria Monogynia*: Each flower contains four males and one female. There is only one SPECIES.

CEPHALANTHUS *Occidentalis*: The CEPHALANTHUS or BUTTON WOOD; *a deciduous shrub;* native of North America.

The CEPHALANTHUS grows to about five or six feet high. It is not a very bushy plant, as the branches are always placed thinly in proportion to the size of the leaves, which will grow more than three inches long, and one and a half broad, if the trees are planted in a soil they like. The leaves stand opposite by pairs on the twigs, and also sometimes by threes, and are of a light green colour: Their upper surface is smooth; they have a strong nerve running from the footstalk to the point, and several others from that on each side to the borders: These, as well as the footstalks, in the autumn die to a reddish colour. The flowers, which are aggregate flowers, properly so called, are produced at the ends of the branches, in globular heads, in July. The florets which compose these heads are funnel shaped, of a yellow colour, and fastened to an axis which is in the middle.

The PROPAGATION of the Cephalanthus is from seeds, which we receive from America. These should be sown as soon as they arrive, and there will be a chance of their coming up the first spring; though they often lie till the spring after before they make their appearance. They may be sown in good garden mould of almost any soil, if somewhat moist the better, and should be covered about a quarter of an inch deep. This shrub is also propagated by layers. If the young shoots are laid in the autumn, they will have struck good root by the autumn, following, and may be then taken up, and set in the places where they are designed to remain. Cuttings of this tree, also, planted in the autumn in a rich, light, moist soil will grow: and by that means also plenty of these plants may be soon obtained.

CERCIS.

LINNEAN Class and Order, *Decandria Monogynia*: Each flower contains ten males and one female. There are only two SPECIES.

1. CE'RCIS *Siliqua'strum*: The COMMON JUDAS TREE, or the ITALIAN CERCIS: *a tall deciduous flowering shrub*; native of Italy and other parts of the South of Europe.

2. CE'RCIS *Canade'nsis*: The CANADIAN JUDAS TREE, or the REDBUD, or the CANADIAN CERCIS; *a deciduous flowering shrub*; native of Canada, Virginia, and other parts of America.

1. The COMMON JUDAS TREES differ in the height

almost every sort, will do very well: And this being well dug, and cleared of all roots, weeds, &c. lines may be drawn for the beds. The mould being fine, part of it should be taken out, and sifted over the seeds, after they are sown, about half an inch thick. Part of the seeds will come up in the spring, and the others will remain until the spring following; so that whoever is desirous of drawing the seedlings of a year old to plant out, must not destroy the bed, but draw them carefully out, and after that there will be a succeeding crop. However, be this as it will, the seeds being come up, they must be weeded, and encouraged by watering in the dry season; and they will require no farther care during the first summer. In the winter also they may be left to themselves, for they are very hardy; though not so much but that the ends of the branches will be killed by the frost, nay sometimes to the very bottom of the young plant, where it will shoot out again afresh in the spring. Whoever, therefore, is desirous of securing his seedling plants from this evil, should have his beds hooped, in order to throw mats over them during the hard frosts. Toward the latter end of March, or beginning of April, the plants having been in the seed bed one or two years, they should be taken out, and planted in the nursery: The distance of one foot asunder, and two feet in the rows, should be giving them. Hoeing the weeds down in the summer must also be allowed, as well as digging between the rows in the winter. Here they may stand until they are to be removed finally; but they must be gone over in the winter with the knife, and such irregular branches taken off as are produced near the root; by which management the tree may be trained up to a regular stem. Such, continues HANBURY, is the culture of the species of Cercis; sorts that are not to be omitted where there are any pretensions to a collection. Besides, the wood itself is of great value, for it polishes exceedingly well, and is admirably veined with black and green.

CHIONANTHUS.

LINNEAN Class and Order, *Diandria Monogynia*: Each flower contains two males and one female. There are two Species: CHIONA'NTHUS *Zeylánica*; and CHIONA'NTHUS *Virgínica*: The SNOW-DROP TREE, or the FRINGE TREE, or the VIRGINIAN CHIONANTHUS; *a tall deciduous shrub;* native of Virginia and other parts of North America.

The SNOW-DROP TREE. This shrub will grow to the height of about fifteen feet, and, until late years, was very rarely to be met with in our gardens. The stem of it is rough, and of a dark brown colour. The leaves are large, shaped like a laurel, broad and roundish, of a fine deep green on their upper surface, but rather hoary. The flowers come out in bunches, in May, from every part of the tree: They are of a pure white; and, in the places where it grows naturally, this must be a most delightful plant; for at that season it exhibits its white flowers in bunches all over it, so as to resemble a tree covered with snow. The few trees we have seldom flower; and even when they do, the flowers are few, and make no great figure. Whoever is desirous of raising this shrub must plant in a moist part of the garden, which is well defended with other trees; for there he will have a chance of seeing the flowers (which are succeeded by black berries, of a moderate size) in more plenty, and in greater perfection.

The CULTURE of this tree is not very easy; for if we attempt to propagate it by layers, these are with difficulty made to strike root; and if we obtain good seeds from abroad, great care and management must be used, to make them to be strong plants, fit to be set out to stand. By layers and seeds, however, this tree may be encreased; and, 1. When layers is the method adopted, let the plants designed for stools be set in a very moist place, where the soil is rich and good. After these stools have thrown out young shoots, they should be layered in the autumn. If there be many twigs of the summer's growth to be layered, different methods may be used on the different twigs; for no one particular method can be depended on, and yet they will grow by almost all. One time the layering has been performed by a small slit at the joint; another twig has had a gentle twist, so as to just break the bark; a third has been wired. The slit-layers, after three or four years, have only swelled to a knob, without any fibres; while the twisted parts have shot out fibres and become good plants. At other times, the twisted part, after waiting the same number of years, has still remained in the ground as a branch without any root; whilst the slit twig, in the mean time, has become a good plant. The like uncertainty has been found to attend the other manner of layering. To propagate the Snow-drop tree this way, every method should be used; and then there will be a greater chance of having some plants; but, at the best, you must not expect them with good roots, until they have lain in the ground about three years; for it is very rarely that they are to be obtained sooner. The layers should be taken from the stools the latter end of March, and planted in pots. These should be plunged into a hotbed; and after they have struck root, should be used to the open air. In May they may be taken out, and plunged in the natural soil, in a moist shady place. When the frost comes on, they should be removed into the greenhouse, or set under a hotbed frame for protection; and in the spring they may be turned out of the pots, with the mould, into the places where they are to remain, which ought to be naturally moist and well sheltered. 2. From seeds; they must be sown in large pots, about half an inch deep, in a strong sandy loam, plunging the pots into a moist shady place in summer, and in winter removing them into the greenhouse or under hotbed frames.

Miller says, "This shrub delights in a moist, soft, loamy soil; and is subject to decay in dry soils and hot seasons."

CISTUS.

LINNEAN Class and Order, *Polyandria Monogynia*: Each flower contains numerous males and one female. There are no less than forty-three SPECIES of this genus of plants, most of which are herbaceous, or herbaceous-shrubby; of the thirteen arborescent species, twelve are naturalized to this climate.

1. CI'STUS *Populifo'lius*: The POPLAR-LEAVED CISTUS, or ROCK ROSE; *an evergreen shrub;* native of Spain and Portugal.

2. CI'STUS *Laurifo'lius*: The BAY-LEAVED CISTUS or ROCK ROSE; *an evergreen shrub;* native of Spain.

3. CI'STUS *Ladani'ferus*: The LADANUM CISTUS, or ROCK ROSE; *an evergreen shrub;* native of Spain, Italy, Crete, and the South of France.

4. CISTUS *Inca'nus*: The HOARY CISTUS, or HOARY-LEAVED ROCK ROSE; *a low evergreen shrub;* native of Spain and the South of France.

5. CI'STUS *Monspelie'nsis*: The MONTPELIER CISTUS, or GUM CISTUS of MONTPELIER; *an evergreen shrub;* native of the South of France.

6. CI'STUS *A'lbidus*: The WHITE CISTUS, or OBLONG WHITE-LEAVED ROCK ROSE; *an evergreen shrub;* native of Spain, Portugal, and France.

7. CI'STUS *Salvifo'lius*: The SAGE-LEAVED CISTUS or ROCK ROSE; *a low evergreen shrub;* native of France, Italy, and Sicily.

8. CI'STUS *Cri'spus*: The CURLED CISTUS, or WAVED-LEAVED ROCK ROSE; *an evergreen shrub;* native of Lusitania.

9. CI'STUS *Halimifo'lius*: The HALIMUS-LEAVED CISTUS, or SEA PURSLAIN-LEAVED ROCK ROSE; *a low evergreen shrub;* grows common near the sea shore in Spain and Portugal.

10. CI'STUS *Villo'sus*: The SHAGGY-LEAVED CISTUS, or SPANISH ROUND-LEAVED ROCK ROSE; *a low evergreen shrub;* native of Italy and Spain.

11. CI'STUS *Cre'ticus*: The CRETAN CISTUS, or

ROCK ROSE; *a low evergreen shrub;* native of Crete and Syria.

12. CISTUS *Libanotis:* The FRANKINCENSE CISTUS, or NARROW-LEAVED SPANISH ROCK ROSE; *a low evergreen shrub;* native of Spain.

1. The POPLAR-LEAVED CISTUS is a shrub of about six feet in height, though it begins its bloom when lower than two feet. The branches have no regular way of growth, and are covered with a brown bark, which will be lighter or darker according to the different soils. The leaves are cordated, smooth, pointed, have footstalks, and a little resemblance to those of the Black Poplar. Old Botanists have distinguished two species of this sort, which they called the Major and the Minor, the one being of larger growth than the other; but modern improvements shew these to be varieties only. The flowers are white, and produced about Midsummer, in plenty, at the ends and sides of the branches. They are of short continuance; but there will be a succession kept up for near six weeks, during which time the shrub will have great beauty.

2. BAY-LEAVED CISTUS is an irregular branching shrub, of about the same height with the former. The leaves are oval, pointed, and in the Midsummer months are very clammy. Their upper surface is of a strong green, but their under is white, and they grow on footstalks which join together at their base. The flowers are produced from the ends and sides of the branches, about Midsummer. They are white, and stand on naked footstalks; and being large, and produced in plenty at that time, make a good figure. This species is rather tender, and requires a warm, dry soil, and a well sheltered situation.

3. The LADANUM CISTUS is so called, because the Ladanum of the shops is collected from this shrub. There are many varieties of it, differing in the colour of the flowers, or in some respect or other; and the tree, with its varieties, will grow to be six or more feet high; though it produces its flowers and exhibits great beauty when very low. It rises with a woody stem; and though it produces its branches in no regular manner, yet it has the appearance of a well fashioned shrub. The leaves are of a lanceolate figure. Their upper

surface is smooth, and of a fine green colour, but their under is whitish and veined. They are scented; and have footstalks that join together at their base. The flowers are very large and delicate, and are produced all over the shrub in plenty. They exhibit themselves about the usual time: Many of them are of a pure white, with a deep purple spot at the bottom of each petal; whilst others again from these afford a variety, being of a purple colour, or having their edges of a reddish tinge. The beauty of this tree, when in blow, is often over, in very hot weather, by eleven o'clock in the morning; but that is renewed every day; and for about six weeks successively a morning's walk will be rendered delightful by the renewed bounties which they bestow.

4. The Hoary Cistus is a shrub of about four feet high, and forms itself into a bushy head. There are four or five varieties of this sort, that have been looked upon by some authors as distinct species; but experience now teaches us better. The leaves of all are hoary; but they differ often in shape, size, or figure; and this has occasioned their being named accordingly, and to be distinguished by the names of Common Hoary-leaved Cistus; the Long-leaved Hoary Male Cistus: the Rounder-leaved Male Cistus; the Large Hoary-leaved Male Cistus, &c. When these different sorts can be procured, they make the plantations more agreeable. The leaves of these sorts of Cistus sit close to the branches, are hairy and rough on both sides. Their figure will be different on the same plant, and be produced in different manners: those on the tops of the branches are spear-shaped, and grow singly; but the lower ones are oval, and joined together at their base. All of them are hoary, though some of the sorts are whiter than others; and these leaves make a good contrast with the stronger greens during the winter months. These shrubs produce their flowers earlier than the other sorts; they often shew some in May. They are of a purple colour, which, in different sorts, will be stronger or lighter. They fall away in the evening; but are constantly renewed, for a month or longer, by a succession every morning.

5. The **Gum Cistus of Montpelier** is commonly of about four feet growth, though like the others, it is very beautiful when no higher than one or two feet. The branches proceed from the bottom of the plant, in plenty; they are hairy, tough, and slender. Their leaves are lanceolated, exsude a very fragrant matter, are hairy on both sides, have three veins running lengthways, are of a dark green colour, and sit close to the branches. The flowers are produced in their greatest plenty about Midsummer, and sometimes earlier, on long footstalks, at the ends of the branches. They are white, and the succession of the blow will be continued often longer than six weeks.

6. **White Cistus** will grow to be five or six feet high; and the younger branches, which will grow in an upright manner, are tough, and covered with a woolly substance. The leaves are oblong, very white, downy, trinervous, and sit close, surrounding the stalk at the base. The flowers are produced from the ends of the branches, at the beginning of June. They are large, of a fine purple colour, and look very beautiful.

7. The **Sage-leaved Cistus** is a much lower shrub, and the branches are many, spreading, and slender. The leaves resemble those of some of the sorts of sage plants. They are oval, on both sides hairy, and have very short footstalks. The flowers are produced in June, from the wings of the leaves. They are white, and stand on naked footstalks; and though they are smaller than some of the other sorts, yet being produced all over the shrub, they make a fine show.

8. The **Curled Cistus** is of about four or five feet growth. The branches are very many, and spreading. The leaves are spear-shaped, waved, hairy, naturally bend backwards, and grow opposite by pairs on the branches. The flowers are produced from the wings of the leaves in June. Their colour is white. The succession will be kept up for a month, or longer.

9. The **Sea Purslain-leaved Cistus** is a shrub of about four feet growth, and sends forth many branches in an upright pretty manner. The younger branches are downy, and the leaves have some little resemblance to the Sea Purslain; though there are varieties of this species with broader and narrower

leaves; some that approach to an oval, and others that are sharp-pointed. They grow opposite by pairs, and make a good variety by their white and hoary look. The flowers are produced in June and July on very long, naked footstalks, which support others also with shorter footstalks. They are of a fine yellow colour, and make a good figure when in blow. This is the most tender of all the sorts, and is generally treated as a greenhouse plant; but if the soil be naturally dry and warm, and the situation well sheltered, it will do very well abroad in our tolerably open winters. It may be adviseable, however, to secure a plant or two in the greenhouse, that, in case a very severe winter should happen to kill those abroad, a fresh stock may be raised from the thus preserved plants.

10. SPANISH ROUND-LEAVED CISTUS. This is a branching shrub, of about a yard or four feet high. The leaves are oval, round, hairy, and placed on footstalks on the branches. The flowers come out in plenty from the tops and sides of the branches, in July. Their colour is purple; and though they are very fugacious, yet there will be a succession of them for a long time.

11. CRETAN CISTUS. This is a branching shrub, of about the same height with the former. The leaves are spatulated, oval, enervous, rough, and grow on footstalks on the branches. The flowers are red; and they make their appearance about the same time with the former.

12. SPANISH NARROW-LEAVED CISTUS. This rises with a shrubby, naked, purple-coloured stalk, to about four feet high. The leaves are narrow, light, reflexed on their sides, and grow opposite to each other without any footstalks. The flowers grow in small umbels, and come out from the ends and sides of the branches, on long slender footstalks. Their colour is white; and their appearance is about the same time with the former.

All the sorts of Cistus are PROPAGATED by seeds and cuttings. 1. Seeds is the best way, as by them the most handsome plants are produced, though they will not always afford so great a plenty of flowers as the plants raised from cuttings. When they are to be raised by seeds, a moderate hotbed should be in readiness for their reception by the beginning of March; and they should be sown in drills a quarter of an inch deep. A dry day should be made choice of for the purpose, and pegs should be stuck to shew the extremity of the drills. The drills may be made two inches asunder; and the bed being neated up, no other covering will be necessary than an old mat, to guard the plants, when coming up, from the spring frosts which may happen; for if the seeds are good, you may expect many plants to appear in less than a month; at which time they should be covered in the night, but be always kept uncovered in open and fine weather. As the dry weather comes on, they must be watered moderately every other morning, and the weeds constantly cleared off; and as the summer heat increases, the mats used to guard them from the frost in the night, must change their office: They must never come near them in the night, but only protect them from the scorching heat in the middle of the day. By the latter end of August many of the plants will be four or five inches high; when they may be thinned, and those drawn out either pricked in the nursery ground, in beds at small distances, in well sheltered places, or planted in pots, to be secured in the winter, and turned out at leisure. Of all the sorts, the Bay-leaved and the Sea Purslain-leaved species, with all their varieties, require this treatment. The rest are all very hardy. Those that are pricked out in rows in the nursery will immediately strike root: and, as well as those left in the old hotbed, if they are in well sheltered places, will do without any protection. If the place is not well defended, either by trees or hedges, it will be proper to prick some furze bushes all around, to break the keen edge of the severe frosts. Those left in the old bed should be planted out in the spring in the nursery ground; and in a spring or two after this, they should all be planted out where they are to remain; for none of these plants succeed so well if removed when grown old and woody. 2. These plants are easily raised by cuttings; and plants raised this way are often the best flowerers, though their manner of growth is not always so upright and beautiful. August is the month for this work; and if a dripping day happens

8. CLE'MATIS *Virginiána:* The SWEET-SCENTED CLEMATIS, or the SWEET-SCENTED AMERICAN CLIMBER; *a deciduous climber;* native of North America.

1. VIRGIN'S BOWER. Of this species of Clematis there are the following *Varieties.*

Double Purple Virgin's Bower.
Single Purple Virgin's Bower.
Single Blue Virgin's Bower.
Single Red Virgin's Bower.

Double Purple Virgin's Bower. This sort stands first on the list, not only because it is an admirable climber, but also is possessed of a large double flower. It will grow to the height of twenty or thirty feet, if supported; and is very proper to cover arbours, as well as walls, hedges, &c. The branches are of a dark brown or dusky colour, angular and channelled. The younger branches are of a fine green colour, and nearly square: They are very numerous, and grow from the joints of the older: and thus they multiply in that manner from the bottom to the top of the plant. The leaves also grow from the joints: They are both compound and decompound*. The folioles, of which each is composed, are of an oval figure, and their edges are entire; and in summer, when the plant is in full leaf, if set alone to form an arbour, after it is said to be grown strong, the branches and large leaves will be produced in such plenty, as not only effectually to procure shade, but even to keep off a moderate shower; so excellently is this plant adapted to this purpose; and more particularly so, as it will grow, when it has properly taken to the ground, fifteen or sixteen feet in one year. The flowers are double, and of a purple colour: They blow in July and August, and are succeeded by no seeds, the multiplicity of the petals entirely destroying the organs of generation.

The *Single Purple Virgin's Bower* is rather a stronger shooter than the Double, and will climb to rather a still greater height. The Double is only a sub-variety of this, which ought not to be neglected; for this exhibits a fair flower, composed of four large petals, in the center of which are seated the numerous stamina.

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* Doubly compound.

The *Single Blue Virgin's Bower* produces its shoots, leaves, and flowers, in the same manner as the other; and makes a variety only in that the flowers are of a blue colour.

The *Single Red* is of much lower growth, and seems of a more delicate and tender nature; not but it is hardy enough to endure any weather; but its shoots are weak, and short in proportion. They are angular, and channelled in the manner of the other; but they are of a reddish colour. The leaves are smaller than the other sorts, and the flowers also are smaller, though they make a fine variety, by their colour being red, These all flower at the same time; but are succeeded by no ornamental seeds.

2. VIRGINIA CLIMBER. The branches are slender and numerous; and the leaves, as in the Virgin's Bower, are both compound and decompound. The folioles grow by threes, and these are often multiplied to form a decompound leaf of nine in number. They are nearly cordated, of a good green, and some of them are trifid. The flowers are produced in July and August, from the wings of the leaves. They are a kind of blue colour; and the petals (which are four in number) of which each is composed, are of a thick coriaceous substance. This sort will sometimes ripen its seeds in England.

3. CAROLINA CLIMBER. This is by some called the Curled flowering Climber; and indeed by that name it is chiefly distinguished in our gardens. It is one of the lower kind of climbers; seldom arising by the assistance of its claspers, to more than six feet. The stalks are very weak and slender The leaves afford great variety, being sometimes trifoliate and sometimes single. The folioles also differ much; for some of them are found whole and entire, whilst others again are divided into three lobes. These leaves are of a dark green colour, and are produced opposite, from the joins of the stalks. The flowers are produced in July and August, on short footstalks, below which a pair or more of oblong pointed leaves often grow. These flowers are composed of four thick, coriaceous, purple, curled petals. This species will for the most part produce ripe seeds in our gardens.

4. **Oriental Climber** is no great rambler; for notwithstanding its slender stalks are well furnished with claspers, it is seldom found to climb higher than about ten feet. The leaves of this sort are compound. The folioles are cut angularly, and the lobes are shaped like a wedge. They are of a good green colour, and are very ornamental to the plant. The flowers are produced from the wings of the leaves early; for it will often be in blow in April. They are of a kind of yellowish green colour, and the petals naturally turn backwards. These flowers differing in colour from the above sorts, and coming earlier in the spring, make it more desirable, as it testifies how many months in the summer are ornamented with the blow of some one or other species of Clematis. The seeds of this sort also will often ripen with us.

5. **Traveller's Joy** is a sturdy climber, and well known in many parts of England; the hedges where it abounds being frequently covered with it. "But its greatest singularity is in winter; at which time it more peculiarly invites the traveller's attention. The branches of this species are very thick and tough, sufficient to make withs for faggots: and for this purpose it is always used in the woods where it can be got. These are so numerous, and produce side branches in such plenty, which divide also into others, that they will overtop hedges, or almost any thing they can lay hold of to climb by. Besides the claspers with which it is furnished, the very leaves have a tendency to twine round plants. These leaves are pinnated; and a variety is occasioned by them; for the folioles of some sorts are indented at their edges, whilst others are found with their edges entire. They are of a blueish green, and moderately large. The flowers are produced in June, July, and August, all over the plant, in clusters. They are succeeded by flat seeds, each of which, when ripe, is possessed of a white hairy plume, and growing in clusters will exhibit themselves in winter all over the tops of bushes, hedges, &c. which at that time will look beautiful and singular. This is the *Viorna* of old Botanists; and is called Traveller's Joy from its thus ornamenting hedges, bushes, &c. to the entertainment of the traveller."

6. EVERGREEN CLEMATIS. This is but a low climber, seldom growing higher than six or eight feet. The branches are very numerous, weak, and slender; but it rises by claspers, which naturally lay hold on any thing near them. The footstalks of the leaves, also, will twine round twigs, &c. so that they become claspers, and ensure the hold of the plant. Nay, if there be no hedge or plant near, by which they may hold and rise, they will twine among themselves; and as the branches are produced in great plenty, they will be so mixed one amongst another, as to form a low thicket, which makes this plant well adapted to produce variety in evergreen shrubery quarters, where, if planted singly, at a distance from other trees, it will naturally form itself into a thick bush. These leaves are sometimes cut into three lobes, sometimes into two, and many of them are undivided. The lobes when most perfect are nearly lanceolate, have their edges indented, and are of as fine a shining green as can be conceived. The flowers are produced in the midst of winter, from the sides of the branches: They are of a greenish colour, though inclined to a white; but the petals being pretty large, and blooming at that unusual season, makes this plant highly valuable.

7. CREEPING CLEMATIS, or *Flammula*, will mount by the assistance of other plants to a good height, sometimes near twenty feet. The stalks are slender and numerous; and the leaves are in this respect singular; for the lower ones are pinnated, and their edges are jagged; but the upper ones grow single. They are of a lanceolate figure, and their edges are entire. The flowers of this species are exhibited in June, July, and August. They are white, and extremely elegant.

8. SWEET-SCENTED CLEMATIS. This sort will rise, by the assistance of neighbouring bushes and trees, to a great height. The branches are many, spread themselves all around, and lay hold of every thing that is near them. The leaves are ternate. The folioles are heart-shaped, angular, and nearly cut into three lobes. The flowers are white, and, being possessed of a most agreeable fragrance, render this climber highly proper for arbours, and to be stationed near seats and places of resort.

These are all the hardy climbing species of this genus yet known. The *varieties* of the first kind are notable, and afford as much diversity in a garden as if they were distinct species. The other sorts also admit of varieties; but the difference is very inconsiderable, and makes little variety, as they nearly agree with some or other of the above sorts.

The PROPAGATION of all these sorts is by layers; and this is best done in summer on the young shoots as they grow. As soon, therefore, as they have shot about a yard or four feet in length, let the ground be well dug about each stool, and made fine, and a gentle hollow made about a foot from the stool. In this hollow let the young shoots be pressed, and covered with mould, leaving their ends out to continue growing. In a very little time they will be a yard or more in length; when a second hollow may be made, at a distance from the other, and the shoots pressed down and covered with mould as before, the ends being still left out to grow. On some of the long shooting sorts this may be repeated again, and even again; and these shoots, thus layered, will strike root. Many of the sorts will have good root by the autumn; and others must be waited for until the autumn following. This summer method of layering is highly necessary; because some of the sorts, particularly the Virgin's Bower, if layered in winter in the common way, will be often two whole years, nay sometimes three, before they will strike root. Any time from autumn to spring the layers may be taken up; and from one stool some scores are often obtained. Those with good roots may be set out to remain; and every bit that has a fibre should be cut off below that fibre, and should be headed to one eye or joint above the part that had been out of the ground; and thus all the layers being collected together should be planted in the nursery at small distances, and in a year or two they also will be good plants for use.

The TRAVELLER'S JOY may be layered at any time, for the roots will easily strike; nay, they will grow by cuttings.

The EVERGREEN SPANISH CLIMBER requires no art or trouble to increase it; for it will increase itself if the ground is left undisturbed a year or two, and will throw out plenty of suckers, which will have roots, and be good plants.

CLETHRA.

LINNEAN Class and Order, *Decandria Monogynia*: Each flower contains ten males and one female. There is only one known SPECIES:

CLE'THRA *Alnifo'lia*: The ALDER-LEAVED CLETHRA, or the AMERICAN ALDER; *a deciduous aquatic shrub;* growing naturally in Virginia, Carolina, and Pennsylvania, like our Alder, by the sides of rivers and watery places.

The CLETHRA is a shrub, with us, about four or five feet high, though in its native soil it is sometimes found so high as eight or ten feet. The branches it sends forth are not numerous, and these are garnished with leaves, which are spear-shaped and serrated. They are about three inches long, an inch and a half broad, and have short footstalks. The Clethra usually flowers in July. The flowers are produced at the ends of the branches, in long spikes: They are white, and possessed of a strong scent. This plant, at present, is not very common in our gardens.

The CULTURE of this shrub is by layers, seeds, and suckers. 1. The plants designed to be encreased by layers should be set in the moistest part of the garden, and managed like those of the CHIONANTHUS. 2. By seeds,—which also should be sown and managed the same as CHIONANTHUS. 3. These shrubs will very often send out suckers, by which they may likewise be propagated. These may be taken off in the autumn, if they have good roots, and planted out in the nursery way: if they have not, they should be let alone till March; then taken up, and planted in pots of good loamy soil, and afterwards plunged into a moderate warmth of dung; which will promote their growth. The autumn following they will be fit to be planted out to stand.

CNEORUM.

LINNEAN Class and Order, *Triandria Monogynia:* Each flower contains three males and one female. There is only one SPECIES:

CNEO'RUM *Trico'ccon:* The CNEORUM, or WIDOW-WAIL; *a low evergreen shrub;* native of dry gravelly places in Spain, Italy, and France.

The CNEORUM, or WIDOW-WAIL is a shrub of about a yard in growth, and is an excellent one for the front of evergreen quarters, where the lowest shrubs are to be placed. The wood of this tree is very hard, and the older branches are covered with a brown bark. The stem naturally divides into many branches; and the bark on the youngest is smooth, and of a pale green colour. The leaves are smooth, of a fine dark green colour, and constitute the greatest beauty of this shrub. They are of an oblong figure, and very long in proportion to the breadth: They will be two inches or more long, and about half an inch in breadth. Their under surface is of rather a paler green than their upper, and their base joins to the young branches without any footstalk. The flowers are yellow, and make no great show. A healthy plant may be expected to be in blow most part of the summer. They grow from the wings of the leaves, towards the ends of the branches; and are succeeded by the seeds, which grow together by threes; which will be of a dark brown or black when they are ripe.

CNEORUM may be PROPAGATED by seeds or by cuttings. 1. By seeds. These should be gathered in October, and be those which have grown from the first flowers of the shrub that summer, and which will be then black, or nearly so, if ripe. They should be sown in a bed of common garden mould made fine, about half an inch deep. One may expect to see the plants come up in the spring; though it often happens that the greatest part of them remain until the second spring before they appear. 2. These plants may be increased by cuttings; but they never make such beautiful shrubs; neither is the method worth practising if seeds can be obtained. The cuttings may be planted in spring; then it will be necessary to set them in pots, and give them the assistance of a hotbed; and this will set them a-growing. The beginning of August is a very good time for planting these cuttings or slips. They should be planted in beds of good fine mould; and these should be hooped, and matted from nine o'clock in the morning until near sun set. Then they should be uncovered, and remain so in all cloudy and rainy weather. Most of these cuttings will grow; and there they may remain without removing until they are set out for good.

When these shrubs are to be planted out, the most dry and gravelly spots must be chosen for them; and in these places they will bid defiance to our severest weather; though in such a soil they will not grow so high as in a moist fat soil, by a foot or more, which is considerable in a shrub of such a natural low growth; but it is necessary for them to be planted in a dry or gravelly soil, because there they will be secure from injury by frosts.

COLUTEA.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female, the males standing in two divisions. There are three SPECIES: one of which is herbaceous, and another a shrub, too delicate for the open air of this climate; the third has long been an ornament to the English garden.

COLUTE'A *Arbore'scens*: The BLADDER SENNA; well known *deciduous shrub*: native of the South of rope, particularly about Mount Vesuvius.

The **Bladder Senna** sports in the following *varieties;* all of which are beautiful in their kind, and afford delight both by their flowers and leaves; viz. 1. The Common Bladder Senna. 2. The Oriental Bladder Senna. 3. Pocock's Bladder Senna. 4. The Red-podded Bladder Senna.

The *Common Bladder Senna* is the tallest grower of all the sorts. It will arrive to the height of about ten or twelve feet. The branches are of a whitish colour, which distinguish it in the winter, and the leaves in the summer have a pleasing effect. They are pinnated; the folioles are oval, and indented at the top; they consist of sometimes four, sometimes five pair, placed opposite, and are terminated by an odd one. The flowers are of the butterfly kind: They are produced in June, July, and August, in clusters; are numerous, of a yellow colour, and the footstalk that supports them is long and slender. The flowers are succeeded by large inflated pods, like bladders, which catch the attention of those who have never before seen them. This tree has variety enough of itself to make it esteemed; but it should always be planted among other trees of the same growth, to break the force of the strong winds; not but that it is hardy enough to resist our severest winters, but the branches will easily split, which will make it unsightly, unless they are sheltered in some degree by other trees. This sort will ripen its seeds in the autumn.

The *Oriental Colutea* will grow to the height of about five or six feet. The branches of this tree also are grayish, and the leaves pinnated, as well as terminated by an odd one, and the lobes are obversely cordated and small. The flowers are reddish, spotted with yellow, and grow from the sides of the branches on footstalks, each of which is formed sometimes with two, sometimes with three flowers. This tree is extremely hardy; and as it does not grow to the size of the common sort, nor in so luxuriant a manner, the branches will not be so liable to be split off by the winds; and therefore the precaution necessary for that, in this sort may be the less observed.

Pocock's Bladder Senna is another variety, of lower growth than the common sort. The leaves are pinnated, and the folioles stand opposite by pairs in both the kinds. They are indented in the same manner at the top; neither can I perceive any other difference between this and the Common Bladder Senna, only that the one is larger than the other, and the flowers come out earlier in the year.

The *Red-podded Bladder Senna* is also a variety, which will happen in common to all the sorts, more or less, when raised from seeds.

These trees are all very easily PROPAGATED. 1. By seeds. Any time in the spring will do for the work, though the month of March is the best season; and no other compost will be required than garden mould of almost any sort, dug and raked fine. If the seeds are sown about half an inch deep, they will come up like corn in a month or two after. Keep the beds weeded until the spring following; and then plant them out in the nursery way, observing always to shortern the tap-root which they often have. In a year or two they will be good and proper plants for the shrubery. 2. These trees may also be propagated by layers; and that is the method generally practised with Pocock's sort, to continue it in its low growth.

CORNUS.

LINNEAN Class and Order. *Tetrandria Monogynia*: Each flower contains four males and one female. There are eight SPECIES; three of which are adapted to ornamental gardening.

1. CO'RNUS *Ma'scula*: The CORNELIAN CHERRY; *a tall deciduous shrub*; growing naturally in the hedges of Austria.

2. COR'NUS *Sangui'nea*: The COMMON DOGWOOD, or BLOODY TWIG; *a deciduous shrub*; common in our hedges, and is natural to most parts of Europe, Asia, and America.

3. Co'rnus *Flo'rida:* The **Virginian Dogwood**, or **Flowering Cornus**; *a deciduous shrub;* native of Virginia.

1. The **Cornelian Cherry** will rise to twenty feet high. Its principal merit as an *ornamental* lies in its flowering early in the spring, and in exhibiting its beautiful scarlet berries in autumn. Its *uses* are held out as numerous. Its fruit was formerly in good esteem; and its wood is said to be useful for wheel-work, pins, hedges, &c. It is arranged by Evelyn and Hanbury among Forest trees.

2. The **Common Dogwood** is well known all over England, as it grows naturally in most parts of the kingdom; a few of these trees are nevertheless admissible into the shrubery, if they are not already too common in its neighbourhood; for the young twigs are red, especially in winter, which look well at that season, as do also its flowers in the summer, and its leaves in the autumn. The redness of these young shoots has occasioned this sort to go by the name *Bloody Twig*. The leaves are about two inches long, and an inch and a half broad: these have large nerves, which terminate in a point, and they often die in the autumn to a reddish colour. The flowers are white, produced in umbels at the ends of the branches, and are succeeded by black berries, like those of the Buckthorn, but have in each only one stone. The wood, it is said, makes the best kind of charcoal in the world for gunpowder. It is brittle, exceedingly white, and when growing is covered with a dark brown bark, the twigs being red.

3. **Virginian Dogwood** will grow rather higher than our Common Dogwood. The twigs are of a beautiful red. The leaves are obversely cordated. The flowers are produced in large bunches somewhat like those of the Elder: Their colour is white; they come out in May and June, and the berries ripen in autumn. Mixed among evergreens, the Dogwoods have a beautiful effect in the winter months.

From these species, the following beautiful *Varieties* figure in our nurseries; viz. Female Virginian Dogwood; American Blue-berried Dogwood; White-berried Dogwood of Pennsylvania; and Swamp Dogwood.

Female Virginian Dogwood, during the winter months, exhibits its branches of so beautiful a red colour, as to distinguish itself to all at that season. It grows to eight or ten feet high; the leaves are somewhat spear-shaped, acute, nervous, and in the autumn die to a fine red. The flowers come out in umbels, at the ends of the branches: They appear in May and June, and the berries ripen in the autumn.

The *American Blue-berried Dogwood* arrives at the height of about eight or nine feet. The twigs of this tree also are of a delightful red. The leaves are large, oval, and hoary on their under-side. The flowers are white, come out in umbels from the extremity of the branches, and are succeeded by large, oval, blue berries, which make a fine appearance in the autumn.

White-berried Dogwood arrives at the same size with the others. The young shoots, like those of the former, are of a beautiful red colour during the winter. Like them, also, it produces its white flowers in large umbels in May; but they are succeeded by white berries in the autumn.

Swamp Dogwood grows naturally in moist places, almost all over America; and it will grow with us in almost any soil or situation. The leaves of this are of a much whiter colour than any of the other sorts; though the flowers and fruit are produced in the same manner.

One method of PROPAGATION is common to all these sorts of Cornus; though this may be effected three ways; by seeds, layers, and cuttings. 1. The seeds of the common sort should be sown in the autumn, soon after they are ripe; and these will come up in the spring. The seeds of the American sorts we generally receive in the spring: These should be sown directly; but they will not come up till the spring following; nor would those of our common sort, if they were kept until the spring before they were sown. No particular art is required for these seeds. They will grow in common garden mould of almost any sort, though the richer it is the better. This must be made fine, cleared of all roots, weeds, &c. and the seeds should be sown about half an inch deep. The spring after the plants come up, they should be planted in the nursery, at a small distance from each other, where they may stand for two or three years, and then be planted out to stand. 2. These trees may be easily propagated by layers; for after having obtained some plants for the purpose, if the shoots that were made the preceeding summer be only laid in the ground in the autumn, they will have good roots by the autumn following. These may be taken off, and planted in the nursery for a year or two, as the seedlings; and the stools being cleared of all straggling branches, and refreshed with a knife, they will make strong shoots for a second operation by the autumn next ensuing. 3. By cuttings likewise these sorts may be propagated. This work should be done in October; and the cuttings for the purpose should be the strongest part of the last year's shoot, that had shot vigorously from a healthy soil. If these are cut into lengths of about a foot long, and planted in a moistish soil, three parts deep, they will grow, and make good shoots the summer following; and these will require no removing before they are planted out finally.

CORIARIA.

LINNEAN Class and Order, *Dioecia Decandria:* Male flowers containing ten stamina, and female flowers containining five pistils upon distinct plants: There are two SPECIES; one of which will bear the open air of this climate.

CORIA'RIA *Myrtifo'lia:* The MYRTLE-LEAVED SUMACH, or TANNER'S SUMACH; *a deciduous shrub;* grows naturally about Montpelier in France, where it is said to be used by the tanners in tanning of leather.

The MYRTLE-LEAVED SUMACH is a shrub of lowish growth, seldom arriving to more than four or five feet high. The bark is of a grayish colour, and spotted. The wood is very brittle, and very full of light pith.

ligneous nature; but only one of them has been introduced into our shruberies.

Coroni'lla *E'merus:* The **Scorpian Senna**, or **Jointed-podded Colutea**; *a deciduous shrub;* native of the South of Europe.

The **Scorpion Senna** sends out numerous irregular branches from the root and on all sides; the oldest and most woody of which are of a grayish colour, whilst the youngest are smooth, and of a dark brown. The leaves are pinnated, and constitute a great beauty in this shrub, being of a pleasant green, and are composed of three pair of folioles, which are terminated by an odd one; these stand opposite on the midrib, and each has an indenture at the top. These leaves, by a proper fermentation, will afford a die nearly like that of indigo. However, beautiful as the leaves are, it is the flowers which constitute the beauty of these shrubs; and, indeed, of all the shrubby tribe, there is none more striking or pleasing than this when in full blow. This usually happens in May; when it will be covered all over with bloom, the shrub itself appearing as one large flower divided into many loose spikes; for the flowers come out all along the sides of the branches by the leaves, on long footstalks, each supporting two or three flowers, which are butterfly-shaped, of a yellowish colour, and large in proportion to the size of the shrub. They are suceeeded by longish pods, in which the seeds are contained. This shrub often flowers again in the autumn.

There is a *Variety* of lower growth, called *Dwarf Scorpion Senna.*

This beautiful shrub is very readily **propagated**, either by seeds, layers, or cuttings; any of which may be easily made to grow. 1. By seeds. These should be sown in the spring, in beds of common garden mould made fine, and cleared of the roots of all weeds, &c. They should be covered about half an inch deep; and, if a very dry spring does not ensue, they will be up in about a month or six weeks. If this should happen, the beds must be now and then watered, and shaded from the heat of the sun, which sometimes is very intense and parching, even at the beginning of May. They may stand in the seed bed two years before they are taken up; all which time they will want no other care than weeding; and if they have watering the first summer, should it prove a dry one, they will grow the faster. After this, they may be taken out of the seed bed, planted in the nursery way, and in about two or three years will be good plants to join in the shrubery. 2. By layers. This business may be performed any time in the winter; but as the shrub sends forth numerous branches, many of them should be taken off, and only such a number left, as that they may be laid into the ground without crowding one another. The branches should be of the last year's shoot; and the operation should be performed by a gentle twist, so as just to break the bark; for, says HANBURY, without this I have found them in the autumn just as they were when layered; and with this, they have always struck root, so as to be fit to take off the winter following. These layers should be planted out in the nursery; and after having stood about two years, they also will be grown to be good plants. 3. By cuttings. The cuttings should be the strongest of the last year's shoots. They should be planted close, in October, in a shady border of good fine mould. If the spring and summer prove dry, watering must be afforded them every other day; and by this means many plants may be raised. If the cuttings are planted close, and most of them grow, they should be thinned, by taking up so many as may leave the others at a foot or more asunder; and these plants also, thus taken up, should be set out in the nursery ground a foot asunder, in rows at a foot and a half distance; where they may stand until they are finally taken up. It dislikes a very moist situation.

CORYLUS.

LINNEAN Class and Order, *Monoecia Polyandria*: Male and female flowers upon the same plant: The males, containing ten stamina each, are collected in cylindrical catkins; the females, containing two pistils.

each, issue from the point of the leaf bud. There ar two **Species.**

1. Co'rylus *Avella'na:* The **Hazel**; a well known *tall deciduous shrub;* very common in this country, and in most parts of Europe.

2. Co'rylus *Colu'rna:* The **Byzantine Nut**, or **Dwarf Nut Tree**; *a low deciduous shrub;* growing naturally near Constantinople.

The **Hazel** will grow to twenty feet high and upwards. A particular description of it here would be superflous. **Linneus** considers the various kinds of **Filberts** as *Varieties* of the common Hazel, improved by culture. **Miller** was of a different opinion: he says, " I have several times propagated both from the nuts, but never have found them vary from the other, though they have altered in the size and colour of their fruit from the sorts which were sown;" he therefore divides them into two distinct species: But **Hanbury** on the other hand says, that they " are varieties only of the same species; for I have planted the nuts of all the sorts, and sorts of all kinds have been produced from them." (Page 111.) As an *Ornamental*, the Hazel is of an inferior class; nevertheless, in recluse quarters, the Filbert may be introduced with propriety: the idea of utility associated with that real ornament which is undoubtedly given by the various tints of the leaves of the different kinds and colours of Filberts, may probably afford more real satisfaction, especially to the owner, than the transient glare of a useless exotic. This being as it may, the Hazel in point of *use* stands high; as an underwood it has no superior: indeed, the Oak and Ash excepted, the husbandman knows not so useful a wood as the Hazel. For stakes, edders, and withs, it is in use every where. In Surry, Kent, and other southern counties, where numerous flocks of sheep are kept, the Hazel alone supplies the farmer with folding hurdles; and in Yorkshire and other parts of the North of England, from whence great quantities of butter are sent to the London market, the hoops or firkin rods are gathered almost wholly from this useful shrub.

2. The **Byzantine Nut.** This is distinguished from the other species chiefly by the stipulæ, which are very narrow and acute, whereas those of the common

nut are oval and obtuse. It differs also in the size of its growth, the true Byzantine Nut tree seldom growing higher than four or five feet; and hence the name *Dwarf Nut tree* has been used for this plant. In other respects, it is like our common nut tree; it flowers at the same time, the fruit is produced in clusters, and it ripens accordingly.

The method of PROPAGATING the Hazel kind is from seeds, by layering, or from the suckers, which it spontaneously sends up in great plenty. The *Nuts* should be sown about two inches deep in February; until which time they should be kept in a cool, moist place to prevent the kernels from becoming dry and shrivelled, yet sufficiently airy to prevent their growing mouldy. The *Varieties* are best preserved by layering; for which purpose a few plants should be procured of the most valuable kinds, and planted for stools. They will grow on almost any soil; and the young twigs being laid in the ground in the autumn, will have struck root by the autumn following. These should be taken off, and planted in the nursery, a foot asunder, and two feet distant in the rows; and if there be any young shoots made the intermediate summer, they also may be laid down, or the plant headed within half a foot of the ground, to send forth young shoots for a second operation the autumn following. By this means the sorts may be propagated, and kept distinct; for the seeds sown of any of them will not in general come to good; though it is observable, that from the best nuts there will be the best chance of having good nuts again; and "I have (says HANBURY) sometimes known some few trees, raised from seeds, which have produced nuts better than those they were raised from. This may, perhaps, induce a gardener desirous of obtaining a great variety to try this method, when he may extirpate the worst sorts, and, if any should be worthy of it, may propagate the others in the manner directed." The Hazel, like the Birch, accommodates itself to every situation.

CRATÆGUS.

LINNEAN Class and Order, *Icosandria Digynia:* Each flower contains about twenty males and two females: There are ten SPECIES; eight of which add considerable beauty to the modern garden.

1. CRATÆ'GUS *Oxyaca'ntha:* The HAWTHORN, or WHITE THORN: a well known *deciduous tree or shrub;* common with us, and growing naturally all over Europe.

2. CRATÆ'GUS *Aza'rolus:* The AZAROLE; *a tall deciduous shrub;* native of Italy and the South of France.

3. CRATÆ'GUS *A'ria:* The WHITE LEAF; or the WHITE BEAM, or the ARIA, or the ARIA THEOPHRASTI; *a deciduous tree or shrub;* grows naturally upon the hills of Kent and Surry, particularly near Box Hill; and in most of the cold parts of Europe.

4. CRATÆ'GUS *Tormina'lis:* The WILD SERVICE, or the MAPLE-LEAVED SERVICE TREE; *a deciduous tree;* native of England, Germany, Switzerland, and Burgundy.

5. CRATÆ'GUS *Cocci'nea:* The VIRGINIA AZAROLE; *a tall deciduous shrub;* native of Virginia and Canada.

6. CRATÆ'GUS *Crus Ga'lli:* The COCKSPUR HAWTHORN: *a tall deciduous shrub;* native of Virginia.

7. CRATÆ'GUS *Tomento'so:* The GOOSEBERRY-LEAVED VIRGINIA HAWTHORN; *a deciduous shrub;* native of Virginia.

8. CRATÆ'GUS *Vi'ridis:* The GREEN-LEAVED VIRGINIA HAWTHORN; *a deciduous shrub;* native of Virginia.

1. The HAWTHORN, in the state in which we are used to observe it, is nothing better than a tall, uncouth, irregular shrub; but trained up as a standard, it swells to a large timber size, with a tall stem and a full spreading head; though we believe it seldom rises to a great height: perhaps not often so high as thirty feet. We have measured the stem of a youthful thriving Hawthorn

eight feet high, and five feet and a half in circumference, with a head proportionable. Mr. Marsham* mentions one near Bethel Church, in the neighbourhood of Norwich, which, at four feet high, girted, in the year 1755, nine feet one inch and a quarter, one of its arms extending more than seven yards. The Standard Hawthorn, whether we view its flowers in the spring, its foliage in the summer, or its fruit in the autumn and winter, is one of the most *ornamental* plants, standing singly, that can be scattered over a park or lawn. Its *uses* will be explained when we come to treat of HEDGES.

In order to PROPAGATE a quantity of *Quick*, one method is generally practised; namely, first burying the haws, and taking them up to sow the October following; though, says HANBURY, there is another way more preferable; namely, to prepare the beds, and sow the haws soon after they are gathered. Whoever pursues the former method, having gathered what quantity of haws will answer his purpose, should in some by-corner of the kitchen garden or nursery dig a hole or pit capacious enough to receive them; some of the earth which came out of the hole, after the haws are put in it, should be laid upon them; and, being thus carefully covered down, they may remain there till October. Then, having ground well dug, and cleared of the roots of all troublesome weeds, and the mould being fit for working, the beds should be made for the haws. Four feet is a very good width for these beds, as they may be easily reached over to be weeded; and if the alleys between be each one foot and a half wide, they will be of a good size. The beds being marked out with a line, sufficient mould must be raked out to cover the haws an inch and a half deep. This being done, and the bottom of the beds being made level and even, the haws should be sown, and afterwards gently tapped down with the back of the spade; and then the fine mould, which had been raked out of the beds, must be thrown over them, covering them an inch and a half deep. In the spring the plants will come up, and in the summer following should be kept clean from weeds; though it does sometimes happen, that few of them will appear till the second spring after sowing. Sometimes the young plants are planted out from the seed beds at one, two, or three years old; but the best plants are obtained by transplanting them into fresh mould the first or second year, letting them remain in the nursery two or three years longer. The practice of the London Nurserymen is this: The strongest of the seed bed plants having been drawn at two or three years old for sale, they clear the beds entirely by drawing the remaining weak underling plants, and transplanting them into fresh beds in this manner (which they call *bedding* them): The ground having been trenched, and the tips of the plants as well as the lower fibres of their roots having been taken off with a sharp knife, they strain a line along one side of the beds; and, by chopping with a spade by the side of the line, leave a cleft or drill, of a depth proportioned to the length of the plants to be laid in; and drawing the loose mould somewhat towards them, leave the side of the drill next to the line with a smooth polished face. Against this face the plants are set up, leaning towards the line, about three inches asunder, leaving their heads about an inch above the mould, and placing their roots at such a depth as to bury their stems from two to three inches deeper than they stood in the seed bed. The loose mould being returned and pressed gently to the roots with the foot, the line is removed, and another row planted in the same manner, about a foot from the first.

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* Of Norfolk, in a Letter published in the First Volume of the Papers of the Bath Agriculture Society.

The Common Hawthorn sports in the following *Varieties.*

The Large Scarlet Hawthorn.
The Yellow Hawthorn.
The White Hawthorn.
The Maple-leaved Hawthorn.
The Double-blossomed Hawthorn.
The Glastonbury Thorn.

The Large Scarlet Hawthorn is no more than a beautiful variety of the Common Haw. It is exceedingly large, oblong, perfectly smooth, and of a bright scarlet; and, from the additional splendour it acquires by the berries, it is propagated to cause variety in plantations for observation and pleasure.

Yellow Haw is a most exquisite plant. The buds, at their first coming out in the spring, are of a fine yellow, and the fruit is of the colour of gold. The tree is a great bearer, and retains its fruit all winter, causing a delightful effect in plantations of any kind. It was orginally brought from Virginia, is greatly admired, and no collection of hardy trees should be without it.

White Haw is but a paltry tree, compared with the former. It hardly ever grows to the height of the Common Hawthorn, is an indifferent bearer, and the fruit is small, and a very bad white.

Maple-leaved Hawthorn will grow to be near twenty feet high, and has very few thorns. The leaves are larger than the Common Hawthorn, resemble those of the Maple, and are of a whitish green colour. The flowers are produced in large bunches, in June, and are succeeded by remarkable fruit, of a shining red, which looks beautiful in the winter.

Double-blossomed Hawthorn produces a full flower and is one of the sweetest ornaments in the spring. Nature seems to have peculiarly designed this sort for the pleasure garden; for though it be the Common Hawthorn only, with the flowers doubled, yet it may be kept down to what size the owner pleases: so that it is not only suitable for wilderness quarters, shruberies, and the like, but is also useful for small gardens, where a tree or two only are admitted. These beautiful double flowers come out in large bunches in May, and the tree is so good a bearer, that it will often appear covered with them. Their colour, at their first appearance, is a delicate white: They afterwards die to a faint red colour, and are frequently succeeded by small imperfect fruit.

Glastonbury Thorn differs in no respect from the Common Hawthorn, only that it sometimes flowers in the winter. It is said to have originally been the staff of Joseph of Arimathea, that noble counsellor who buried Christ. He, according to the tradition of the abbey of Glastonbury, attended by eleven companions, came over into Britain, and founded, in honour of the Blessed

Virgin, the first Christian Church in this isle. As a proof of his mission, he is said to have stuck his staff into the ground, which immediately shot forth and bloomed. This tree is said to have blossomed on Christmas day ever since, and is universally distinguished by the name of the Glastonbury Thorn. HANBURY says, I have many plants that were originally propagated from this thorn; and they often flower in the winter, but there is no exact time of their flowering; for in fine seasons they will sometimes be in blow before Christmas, sometimes they afford their blossoms in February, and sometimes it so happens that they will be out on Christmas day.

2. AZAROLE. The Azarole Thorn will grow to be fifteen or sixteen feet high. The leaves are large, nearly trifid, serrated, and obtuse. The flowers are large, come out in May, and, in the different varieties, are succeeded by fruit of different size, shape, and relish.

The principal *Varieties* of this species are, The *Azarole with strong thorns;* the *Azarole with no thorns;* the *Jagged-leaved Azarole;* the *Oriental Medlar.*

3. The WHITE LEAF. The *Aria Theophrasti*, called the White leaf tree, will grow to be more than twenty feet high*. This tree is engaging at all times of the year, and catches the attention, even in the winter; for then we see it stand, though naked of leaves, with a fine straight stem, with smooth branches, spotted with white, at the end of which are the buds, swelled for the next year's shoot, giving the tree a bold and fine appearance. In the spring the leaves come out of course, and look delightfully, having their upper surface green, and the lower white. Their figure is oval; they are unequally serrated, about three inches long, and half as wide. Several strong nerves run from the midrib to the border, and they are placed alternately on the branches, which appear as if powdered with the finest meal. The flowers are produced at the ends of the branches, in May; they are white, grow in large bunches, having meally footstalks, and are succeeded by red berries, which will be ripe in autumn.

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* At Blair of Athol, a seat of the Duke of Athol, in the Highlands of Perthshire, this Tree grows to a timber size.

4. The **Wild Service**. The Maple-leaved Service is a large growing tree. It will arrive to near fifty feet, and is worth propagating for the sake of the timber, which is very white and hard. This tree grows naturally in several woods in England; and it is the fruit of this species that is tied in bunches, and exposed for sale in the autumn: It is gathered in the woods, and by some persons is much liked. The leaves in some degree resemble those of the Maple tree in shape; their upper surface is a fine green, their under hoary; and they grow alternately on the branches. The flowers come out in May, exhibiting themselves in large clusters at the ends of the branches: They are white, and are succeeded by the aforesaid eatable fruit, which, when ripe, is of a brown colour, and about the size of a large haw.

5. **Virginia Azarole**. This species will grow to be near twenty feet high. The stem is robust, and covered with a light coloured bark. The branches are produced without order, are of a dark brown colour, and possessed of a few long sharp thorns. The leaves are spear-shaped, oval, smooth, and serrated; of a thickish consistence, and often remain on the tree the greatest part of the winter. Each separate flower is large; but as few of them grow together, the umbels they form are rather small. They come out in May, and are succeeded by large dark red coloured fruit, which ripens late in the autumn.

The *Varieties* of this species are, The *Pear-leaved Thorn;* the *Plum-leaved Thorn with very long strong spines and large fruit;* the *Plum-leaved Thorn with short spines and small fruit.*

6. **Cockspur Hawthorn**. The Virginia Cockspur Thorn will grow to about twenty feet high. It rises with an uprigh stem, irregularly sending forth branches, which are smooth, and of a brownish colour, spotted thinly with small white spots. It is armed with thorns that resemble the spurs of cocks, which gained it the appellation of Cockspur Thorn. In winter, the leaf buds appear large, turgid, and have a bold and pleasant look among others of different appearances. In summer, this tree is very delightful. The leaves are oval, angular, serrated, smooth, and bend backwards. They

are about four inches long, and three and a half broad; have five or six pair of strong nerves running from the midrib to the border; and die to a brownish red colour in the autumn. The flowers are produced in very large umbels, making a noble show in May; and are succeeded by large fruit, of a bright red colour, which have a good effect in the winter. It will bear a very moist situation.

The principal *Varieties* of this species are, The *Cockspur Hawthorn with many thorns*; the *Cockspur Hawthorn with no thorn*; the *Cockspur with eatable fruit*. The latter was sent me, says HANBURY, from America with that name, and I have raised some trees from the seed; but they have not yet produced any fruit, so that I cannot pretend to say how far it may be desirable; though I have been informed it is relished in America by some of the inhabitants there.

7. GOOSEBERRY-LEAVED VIRGINIA HAWTHORN. This species grows to about seven or eight feet high. The branches are slender, and closely set with sharp thorns. The leaves are cuneiform, oval, serrated, and hairy underneath. The flowers are small, and of a white colour: They are produced from the sides of the branches, about the end of May; and are succeeded by yellow fruit, which ripens late in autumn.

There is a *Variety* of this, called the *Carolina Hawthorn*, which has longer and whiter leaves, larger flowers and fruit, and no thorns.

8. GREEN-LEAVED VIRGINIA HAWTHORN. The stem and branches of this species are altogether destitute of thorns. The leaves are lanceolate, oval, nearly trilobate, serrated, smooth, and green on both sides. The flowers are white, moderately large, come out the end of May, and are succeeded by a roundish fruit, which will be ripe late in the autumn.

The respective species are all PROPAGATED by sowing of the seeds; and the varieties are continued by budding them upon stocks of the White Thorn. This latter method is generally practised for all the sorts; though, when good seeds can be procured, the largest and most beautiful plants are raised that way. 1. In order to raise them from seeds, let these be sown soon after they are ripe, in beds of fresh, light, rich earth.

Let alleys be left between the beds, for the conveniency of weeding, and let the seeds be covered over with fine mould, about an inch deep. The summer following, the beds must be kept clean from weeds, and probably some few plants will appear: But this is not common in any of the sorts; for they generally lie till the second spring after sowing before they come up. At the time they make their appearance they must be watered, if the weather proves dry; and this should be occasionally repeated all summer. They should also be constantly kept clean from weeds; and in the autumn the strongest may be drawn out, and set in the nursery ground, a foot asunder, in rows that are two feet distant from each other; while the weakest may remain until another year. During the time they are in the nursery, the ground between the rows should be dug every winter, and the weeds constantly hoed down in the summer; and this is all the trouble they will require until they are planted out for good, which may be in two, three, or more years, at the pleasure of the owner, or according to the purposes for which they are wanted.

2. These trees are easily propagated by budding also; they will all readily take on one another; but the usual stocks are those of the Common Hawthorn. In order to have these the best for the purpose, the haws should be got from the largest trees, such as have the fewest thorns and largest leaves. After they are come up, and have stood one year in the seed bed, the strongest should be planted out in the nursery, a foot asunder, and two feet distant in the rows; and the second summer after, many of them will be fit for working. The end of July is the best time for this business; and cloudy weather, night and morning, are always preferable to the heat of the day. Having worked all the different sorts into these stocks, they may be let alone until the latter end of September, when the bass matting should be taken off. In the winter the ground between the rows should be dug, and in the spring the stock should be headed about half a foot above the bud. The young shoots the stocks will always attempt to put out, should be as constantly rubbed off; for these would in proportion starve the bud, and stop its progress. With this care, several of the sorts have been known to shoot

six feet by the autumn; and as they will be liable to be blown out of their sockets by the high winds which often happen in the summer, they should be slightly tied to the top of the stock that is left on for the purpose, and this will help to preserve them.

CUPRESSUS.

LINNEAN Class and Order, *Monoecia Monadelphia*: Male flowers containing four stamens connected at the base, and female flowers containing many pistils; the males being disposed in oval catkins: and the females, collected in roundish cones upon the same plant. There are five SPECIES (one of them lately discovered in Japan):

1. CUPRE'SSUS *Sempervi'rens*: The COMMON CYPRESS; *an evergreen tree;* native of Italy, Spain, Portugal and Crete.

2. CUPRE'SSUS *Thyo'ides*: The AMERICAN CYPRESS; or the ARBOR-VITÆ-LIKE CYPRESS, or the SMALL BLUE-BERRIED CYPRESS; *an evergreen tree or shrub;* native of Maryland and Canada.

3. CUPRE'SSUS *Juniperoi'des*: The AFRICAN CYPRESS, or the JUNIPER-LIKE CYPRESS, or the CAPE CYPRESS; *a deciduous tree or shrub;* native of the Cape of Good Hope.

4. CUPRE'SSUS *Di'sticha*: The DECIDUOUS CYPRESS; *a deciduous tree;* native of North America.

1. The COMMON CYPRESS. There are two striking *Varieties* of this plant (MILLER makes them two distinct SPECIES); namely,

The Upright or Female Cypress; and

The Spreading or Male Cypress.

There is also a third *Variety* (which the same professional writer considers likewise as a distinct species); namely,

The Small-fruited Cypress.

The *Upright Cypress* is a most elegant plant, and, nothwithstanding it has of late years been somewhat unfashionable, it certainly merits a place amongst *ornamental* evergreens. Its conical, or rather somewhat obeliscal, form makes an agreeable variety with fuller headed plants. It aspires to a considerable height, though we believe it seldom swells to a large girt. However, EVELYN and HANBURY speak of this kind of Cypress as a timber tree; but both of them seem to give preference to

The *Spreading Cypress*. This grows with a fuller and less regular head than the upright sort. MILLER tells us, that in the Levant this is the common timber; and recommends the planting of it in England very strongly; especially upon hot, sandy, or gravelly soils.

The *Small fruited Cypress* is still more spreading than the other, and produces its boughs in an irregular manner. If it is not crowded by other trees, and is left to nature, it will be feathered from the top to the bottom. It will grow to about the height of the Common Cypress, and is a sort that looks well if planted singly on grass plats, &c. as well as when assisting to form clumps, or larger quarters of evergreens.

2. AMERICAN CYPRESS. This is the lowest grower of all the sorts with us; though in America, where it grows naturally, it arrives to timber, which serves for many excellent purposes. The tallest of these trees seldom rise much higher than fifteen feet; and as this tree is increased by cuttings, those plants raised this way seldom rise higher than about nine or ten feet. The branches stand two ways, and are pretty numerous; and the tree naturally forms itself into a regular head. The leaves of this sort are imbricated, like the *Arbor Vitæ*, though small, and are of a browner kind of green than the Common Cypress. The fruit is very small, and of a blue colour, and will be produced in great plenty all over the plant. They are of the size of the juniper berry, and much resemble it; though they are cones, and like the other species of this genus, but much smaller. When these plants are raised from seeds, they will aspire to a greater height, especially if planted in a moist soil; but those raised by cuttings generally have the appearance of shrubs. They are all, however, very beautiful, and greatly embellish those parts of the evergreen plantations where they are stationed.

3. **African Cypress.** The branches of this species are numerous, slender, and spread themselves all around. The leaves are narrow, awl-shaped, about an inch long, of a light green colour, and grow opposite to each other on the branches The flowers come out from the sides of the branches, like the Common Cypress, and they are succeeded by black fruit; but the seeds never ripen in England.

The method of PROPAGATING the Common Cypress is from seeds sown in a warm border, or well sheltered beds, of light sandy loam, near half an inch deep, in the month of March; and by the beginning of May the plants will be up. After they have come up, if the summer should not prove very dry, they will require little watering; and even in the greatest drought twice a week will be sufficient for them, provided it be done in the evenings. This is the only care they will require the first summer, except being kept clean from weeds. In the winter, if the place where they are sown be tolerably well sheltered, they will stand it very well, though it should prove severe; but where the situation is not well sheltered, by plantations to break the violence of the frosty black winds, they must be screened, otherwise many will be lost. It is the black frosts, attended by high winds, which will destroy these plants; so that where there is not shelter enough to break their edge, the beds should be hooped over, and covered with mats during that severe weather. The ensuing summer the plants may remain undisturbed, when they will require no watering, and no farther care except weeding. The spring following, being then two years old, they should be set out in the nursery, exactly at two feet square. In taking them out of the seed bed, some earth should be taken with the roots. The latter end of March is the most proper time for this work; and if the weather should prove dry and cold, as it often happens, the March winds blowing, the work must be deferred till rainy or cloudy weather; for without these precautions, you will find this a difficult plant to remove. After they are planted out in the nursery, they may be now and then watered in dry weather, kept clean from weeds, and thus may stand till they are of a sufficient size to be planted out. They will grow in almost any *soil*; but above all affect sandy gravelly ground.

With regard to the African and the American Cypress, the *seeds* should be sown in pots or boxes. We receive them from abroad: They are very small, and seldom come up before the second spring; so that there will be less danger of their being lost if they are sown in pots or boxes, which may be set in the shade in summer, and removed into well sheltered places during the winter. In the spring the plants will come up; and after that the Blue-berried Cypress may have the same treatment as the young seedlings of the Common sort. With respect to the Cape Cypress, the plants must be set in pots, to be housed in winter, until they are grown to be a yard high. When they are turned out into the open air, they should have a dry warm soil, and a well sheltered place, and even these will not ensure their safety; so that whoever is desirous of having these trees in his plantations, should have some wooden sconces made, to cover them in frosty weather; and if this is observed until they are grown of a tolerable size, there is no doubt but they will live, in a warm well sheltered place, through our common winters.

4. The DECIDUOUS CYPRESS will grow to be near sixty feet high, if stationed in a place suitable to its nature. It is very hardy, in respect to cold; and a share of the moistest part of the plantation must be allotted it. In Virginia and several parts of America, where this tree is a native, it is a real aquatic; being found growing to a very large size in places wholly covered with water; and with us, if planted in watery places, by the edges of rivers, ponds, springs, &c. it will be more luxuriant, and will proportionally rise to a greater height and bulk than if planted in a dry soil. This tree in the summer has a little the resemblance of an evergreen, and the leaves have a pleasing effect, appearing in some respect like some sorts of the Acacias; and these are the chief inducements for its admission into the pleasure ground.

This species may be PROPAGATED from *seeds* in the same manner as the Common Cypress; also from *cuttings* planted in October in a moist standy soil. Many of them will grow; though a general crop can seldom be obtained; and they should be kept clean from weeds the summer following, as well as the summer after that. In the autumn, or any part of the winter, they should be planted out in the nursery; and, if they are to stand there a considerable time, they should be allowed a good distance; for they will grow, with proper care, when removed at a large size. If any part of the nursery ground is moister than the other, they must have a share of it. The ground should be constantly dug between the rows every winter, the weeds hoed down in summer, and when planted out, these trees should have moist places, in consequence of what has been before observed.

CYNANCHUM.

LINNEAN Class and Order, *Pentandria Digynia*: Each flower contains five males and two females: There are fourteen SPECIES; most of them climbing: Three are sufficiently hardy for this climate.

1. *Cyna'nchum Acu'tum*: The ACUTE-LEAVED CYNANCHUM, or the ACUTE-LEAVED MONTPELIER SCAMMONY; *an herbaceous climber*; native of the South of Europe.

2. *Cyna'nchum Monspeli'acum*: The ROUND-LEAVED CYNANCHUM, or ROUND-LEAVED MONTPELIER SCAMMONY; *an herbaceous climber*; native of Spain and the South of France.

3. *Cyna'nchum Subero'sum*: The CAROLINA CYNANCHUM, or the CAROLINA PERI'PLOCA; *a ligneous climber*; native of Carolina and other parts of America.

1. The ACUTE-LEAVED CYNANCHUM. The root is strong, creeping, and spreads itself to a considerable distance. The stalks are herbaceous, twist about every thing that is near them, will grow to be six feet long, but always die to the ground in the autumn, and fresh ones are put forth from the roots in the spring. The leaves are oblong, heart-shaped, acute-pointed, smooth,

and grow opposite by pairs on long footstalks. The flowers come out from the wings of the leaves in small bunches; they are of a dirty white colour, appear in June and July, but are not succeeded by good seeds in our gardens. This plant, on being wounded, emits a milky juice.

2. ROUND-LEAVED CYNANCHUM. The root of this species is large, thin, juicy, and spreads itself to a considerable distance. The stalks are herbaceous, and twine to six or seven feet high about whatever is near them. The leaves are broad, reniform, roundish, and grow opposite, on long footstalks. The flowers come out from the wings of the leaves, in small bunches; they are of a bad white colour, appear in June and July, and are rareley succeeded by good seeds in our gardens. The stalks die to the ground in the autumn, and fresh ones arise again in the spring. On wounding any part of this plant, a milky juice immediately flows.

3. CAROLINA CYNANCHUM. The stalks of this species are slender, ligneous, shrubby, and will twist about any thing to the height of about seven feet. They are hairy, and their lower part is covered with a thick, fungous, cloven, cork-like bark. The leaves are oval, heart-shaped, pointed, and grow opposite at the joints, on long hairy footstalks. The flowers come out from the wings of the leaves, in small bunches. They are greenish on their first appearance, but die away to a bad purple. They exhibit themselves in July and August; but are not succeeded by good seeds in our gardens.

This sort is PROPAGATED by layering down the young shoots as they advance in the summer, and covering them over with some fine mould. These will soon put out roots, by the autumn will be good plants, and may then be removed to the places where they are designed to remain. This species is rather tender; and the soil in which it is planted should be naturally dry, warm, light, and sandy, and the situation well defended. Being thus stationed, it will live abroad, and continue for many yeart; but if the soil is moist, rich, and ill defended, the chance will be very great but it will be destroyed the first winter.

The first two sorts are exceedingly hardy, will grow in any soil or situation, and will overrun any small plants that are near them. Their situation, therefore, should be among such trees as have strength enough to admit their embraces; and their propagation is by cutting the roots in the autumn. Every cut will grow; and when planted, will call for no trouble except keeping them clear from weeds, when they first shoot up in the spring.

CYTISUS.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males rising in two divisions: There are fourteen SPECIES; five of which afford considerable ornament to the English garden.

1. *Cy'tisus Sessilifo'lius:* The SESSILE-LEAVED CYTISUS (or TREFOIL TREE, or BASE TREE TREFOIL), or CYTISUS SECUNDUS CLUSII, or the SMOOTH ROUND-LEAVED CYTISUS; *a deciduous shrub;* native of France, Italy, and Spain.

2. *Cy'tisus Ni'gricans:* The BLACK CYTISUS; or the BLACKISH SMOOTH CYTISUS; *a deciduous shrub;* native of Austria, Bohemia, Italy, and Spain.

3. *Cy'tisus Austri'acus:* The TARTARIAN CYTISUS; or the AUSTRIAN CYTISUS; *a low deciduous shrub;* native of Austria, Siberia, and Italy.

4. *Cy'tisus Labu'rnum:* The LABURNUM; *a deciduous tree;* native of Switzerland, Savoy, and most parts of Europe.

5. *Cy'tisus Hirsu'tus:* The EVERGREEN CYTISUS; or the EVERGREEN CYTISUS OF NAPLES; or the ITALIAN CYTISUS WITH HAIRY LEAVES; *an evergreen shrub;* native of Italy, Spain, Austria, and Siberia.

1. The SESSILE-LEAVED CYTISUS will grow to the height of about five or six feet. The branches are numerous, erect, very brittle, and covered over with a smooth brown bark. The leaves are small, and of a fine green: They are nearly of an oval figure, and

grow by threes on the twigs; on some branches they sit quite close, on others they grow on very short footstalks. The flowers grow at the ends of the branches, in short spikes: They are of a fine yellow, come out the beginning of June, and when in full blow the shrub will appear almost covered with them. The seeds usually ripen in August.

2. **Black Cytisus** will arrive to about the height of the former, and naturally divides into many branches. The bark is brown, and the young shoots are of a greenish red. The leaves resemble Trefoil: They are smooth, and grow three together on brownish footstalks; the folioles are of an oblong oval figure, and their upper surface is of a dark green, but they are paler underneath. The flowers are produced in long, erect, close spikes, at the ends of the branches: They are of a beautiful yellow colour, come out in July, and when in full blow make a fine appearance. The seeds ripen in the autumn.

3. **Tartarian Cytisus.** The stalks are shrubby, branching, green, and grow to three or four feet high. The leaves are oval, oblong, smooth, and of a whitish green colour. The flowers come out in close heads from the ends of the branches, in May: They are of a light yellow colour, and have a cluster of leaves under them; they are sometimes succeeded by short woolly pods, containing the seeds.

There is a *Variety* of this species, with naked stalks, smaller leaves and flowers, rather earlier in the spring, usually called the *Siberian Cytisus.*

4. The **Laburnum** is a large growing plant: It will aspire to the height of near forty feet, and is one of the most beautiful trees our gardens afford. It will form itself into a fine head; its branches are smooth, of a pale green colour, and possessed of a few grayish spots. The leaves stand by threes on long slender footstalks: Each of these is oblong and entire; their upper surface is smooth, and of a shining green, but their under surface is more inclined to be downy. The time of this tree's flowering is May; and the effect can hardly be conceived which it will have, when it appears covered with its long pendulent bunches of flowers, of a delightful yellow. Each flower that helps

to compose one set is tolerably large of itself, and the common stalk to which they adhere by their own separate footstalks is often a foot or more in length; so that the appearance must be most noble, when it exhibits these long series of flowers hanging down from almost every part of the whole head: HANBURY continues, "But this is not all; the timber when felled is exceedingly valuable. It will arrive in bulk in proportion to its height; and the timber is both heavy and hard, and of a fine colour, inclined to yellow. The very branches of this tree are so ponderous as to sink in water. It polishes extremely well, and is so much like to green ebony, that it is called by the French, *Ebony of the Alps*, where the tree grows naturally. And as the timber is so valuable for many sorts of rich furniture, this should arouse the timber planter's attention; for it will grow to be a timber tree of more than a yard in girt, in almost any poor and sorry soil, where other trees will hardly grow, let the situation be what it will: And how enchantingly ornamental must large quarters or clumps of those trees appear, either by the borders of other woods, or in parks, and at the same time the expectation of the timber crop retained!"

There are some other sorts of LABURNUMS, of equal or more beauty than the preceding: One is called the *Scotch Laburnum**, another the *Italian*. The leaves of these are larger, and the bunches of flowers longer; and the individual flowers of which the bunches are composed proportionally larger. There is also another sort, with smaller leaves, and bunches longer than the common, which difference it always preserves from seeds; and these being planted among the common sort, will afford the greater variety.

One method of PROPAGATION is common to all these sorts: It is to be performed both by seeds and cuttings. 1. When by seeds, common garden mould, when dug, and cleared from the roots of all weeds, will do for their reception. They should be sown in the spring, in beds neated up, about half an inch deep, and in about six weeks the young plants will appear. Nothing more will be necessary than keeping them clean from weeds during the summer, unless the weather proves very dry; if it does, a little watering sometimes will be proper. The spring following, the *Laburnums* should be planted out in the nursery; but the other sorts should stand in the seed bed two years, to gain strength, before they are taken up. These should be planted a foot asunder, and two feet distant in the rows; but the *Laburnums* ought to have a rather greater distance, especially if they are designed to be trained up for standards. 2. Another method of increasing these sorts is by cuttings. October is the best month for the work; and the cuttings may be planted either a foot asunder, and two feet distant in the rows, so that they need not be removed till they are taken up for good; or they may be set very thick, and those which live taken up the winter following, and planted out in the nursery way, at distances wide in proportion to the time they are to stand. It will bear a very moist situation.

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* This reaches a timber size in Scotland. The heart is of a beautiful brown colour, and close texture.

5. The EVERGREEN CYTISUS. This shrub is naturally of an upright growth, and its common height is about six or seven feet. It may be trained up to a single stem, for two, three, or four feet high, and will naturally send out many branches, which will form themselves into a fine head. The bark on the stem is of a gray colour; the branches also are gray, with a green cast at a distance; and many of them will have the appearance of being channelled, the bottom of the grooves being of a dusky green, but their upper edges white. The younger shoots are green and streaked, and their surface is hairy. The leaves also have this property; and stand three upon a short footstalk. They are nearly of an oval figure, and have a strong midrib running the whole length. They are of a fine green colour, and clothe the shrub with great beauty. The flowers are of a clear yellow colour, and are shaped like those of the other sorts: They appear in June, and are produced from the sides of the branches, all over the shrub, in short bunches; so that its golden head at that time is both beautiful and striking. Neither is June the only time of its flowering; for it will often flower again in October; and, if the winter

continues open and mild, it will sometimes shew its blossoms in November and December. The flowers that appeared in June, which is its regular time of blow, will be succeeded by small hairy pods, in which the seeds are contained, and which ripen with us very well in the autumn.

This sort should be PROPAGATED by seeds, which should be sown in the spring, and managed as directed for the deciduous sorts; only it may not be amiss to observe, that it will be necessary to plant the seedlings in the nursery when they have stood one year in the seed bed. They should be set about a foot asunder, in rows at two feet distance; and here they may stand for about two years, when they should be planted out.

DAPHNE.

LINNEAN Class and Order, *Octandria Monogynia*: Each flower contains eight males and one female: There are fifteen SPECIES; eight of which are proper for our collection.

1. *Da'phne Meze'reum:* The MEZEREON or SPURGE OLIVE; *a low deciduous shrub;* native of Germany; and has been discovered in this country in some woods near Andover, in Hampshire.

2. *Da'phne Gni'dium:* The FLAX-LEAVED DAPHNE, or FLAX-LEAVED THYMELÆA; *a low deciduous shrub;* native of Italy, Spain, and about Montpelier.

3. *Da'phne Cneo'rum:* The SPEAR-LEAVED DAPHNE, or the CNEORUM; or the CLUSTER FLOWERING SPEAR-LEAVED DAPHNE; *a very low deciduous shrub;* native of Switzerland, Hungary, the Alps, and the Pyrenean Mountains.

4. *Da'phne Tartonra'ira:* The OVAL-LEAVED DAPHNE, or the TARTONRAIR; or CLUSTER FLOWERING OVAL-LEAVED DAPHNE; *a very low deciduous shrub;* native of France and Italy.

5. *Da'phne Alpi'na:* The ALPINE DAPHNE; or the ALPINE CHAMELÆA; *a low deciduous shrub;* native of the Alps, Geneva, Italy, and Austria.

6. *Da'phne Thymelæ'a:* The MILKWORT-LEAVED DAPHNE, or the THYMELÆA; *a low deciduous shrub;* native of Spain and the South of France.

7. *Da'phne Villo'sa:* The HAIRY-LEAVED-DAPHNE, or the SMALL HAIRY PORTUGAL DAPHNE; *a very low deciduous shrub;* native of Spain and Portugal.

8. *Da'phne Laure'ola:* The SPURGE LAUREL, or the EVERGREEN DAPHNE; *a low evergreen shrub*; common in some parts of this kingdom, also in Switzerland and France.

1. The MEZEREON. Of this elegant plant there are four *Varieties:* 1. The *White.* 2. The *Pale red.* 3. The *Crimson.* And, 4. The *Purple flowering.*—HANBURY is very lavish of his praise of these shrubs; he says, "They have each every perfection to recommend them as flowering shrubs. In the first place, they are of low growth, seldom arising to more than three or four feet in height, and therefore are proper even for the smallest gardens. In the next place, they will be in bloom when few trees, especially of the shrubby tribe, present their honours. It will be in February, nay, sometimes in January; then will the twigs be garnished with flowers, all around, from one end to the other. Each twig has the appearance of a spike of flowers of the most consummate lustre; and as the leaves are not yet out, whether you behold this tree near or at a distance, it has a most enchanting appearance. But this is not all; the sense of smelling is peculiarly regaled by the flowers; their spicy sweetness is diffused around, and the air is perfumed with their odours to a considerable distance. Many flowers, deemed sweet, are not liked by all; but the agreeable inoffensive sweetness of the *Mezereon* has ever delighted the sense of smelling, whilst the lustre of its blow has feasted the eye. Neither is this the only pleasure the tree bestows; for besides the beauty of the leaves, which come out after the flowers are fallen, and which are of a pleasant green colour and an oblong figure, it will be full of red berries in June, which will continue growing till the autumn. Of these berries the birds are very fond; so that whoever is delighted

with those songsters, should have a quantity of them planted all over the outsides of his wilderness quarters."

Propagation. This sort ripens its seeds with us, and may at any time be easily obtained, if they are secured from birds. Previous therefore to sowing, the healthiest and most thriving trees of the White, the Pale, and the Deep Red sorts should be marked out; and as soon as the berries begin to alter from green, they must be covered with nets, to secure them from the birds, which would otherwise devour them all. The berries will be ripe in July; and due observance must be had to pick them up as they fall from the trees, and to keep the sorts separate. As soon as they are all fallen, or you have enough for your purpose, they may then be sown. The best soil for these plants is a good fat black earth, such as is found in kitchen gardens that have been well manured and managed for many years. In such soil as this they will not only come up better, but will grow to a greater height than in any other. No particular regard need be paid to the situation; for as this tree is a native of the northern parts of Europe, it will grow in a north border, and flourish there as well as in a south; nay, if there be any difference, the north border is more eligible than the south. The ground being made fine, and cleared from roots of all sorts, the seeds should be sown, hardly half an inch deep. The mould being riddled over them that depth, let the beds be neated up, and they will want no other attention until the spring. These seeds will sometimes remain in the ground two years; but for the most part they come up the spring after sowing; and the seedlings will require no other care during the summer than weeding, and gentle watering in dry weather. After they have been in the seed bed one year, the strongest may be drawn out, and planted in the nursery, to make room for the others; though if they do not come up very close, it would be as well to let them remain in the seed bed until the second autumn: when they should be taken up with care, and planted in beds at a foot asunder each way. This will be distance enough for these low-growing shrubs. October is the best month for planting them out finally; for although they will grow if removed any time between then and spring, yet stalks: They are of a greenish colour, have no footstalks, appear in March, and are succeeded by small yellowish berries, which will be ripe in August. This sort requires a dry soil and a warm situation.

7. **Hairy-leaved Daphne.** The stalks are ligneous, about two feet high, and send forth branches alternately from the sides. The leaves are spear-shaped, plane, hairy on both sides, and grow on very short footstalks. The flowers have very narrow tubes, are small, and make no great show: They come out in June, and are not succeeded by ripe seeds in England. This shrub, in some situations, retains its leaves all winter in such beauty as to cause it to be ranked among the low-growing evergreens; but as in others it is sometimes shattered with the first black winds, it is left to the Gardener whether to place this shrub among the Deciduous Trees or Evergreens.

All these sorts are with some difficulty **propagated** and retained. They will by no means bear removing, even when seedlings; and if ever this is attempted, not one in a hundred must be expected to grow. They are raised by seeds, which we receive from the places where they grow naturally; and he who is desirous of having these plants, must manage them in the following manner: Let a compost be prepared of these equal divisions; one fourth part of lime rubbish; one fourth part of drift or sea sand; another of splinters of rocks, some broad and others smaller; and the other part of maiden earth, from a rich pasture. Let these be mixed all together, and filled into largish pots. In each of these pots put a seed or two, about half an inch deep, in the finest of the mould. We receive the seeds in the spring; so that there is little hope of their coming up until the spring following: Let, therefore, the pots be set in the shade all the summer, and in the autumn removed into a warm situation, where they may enjoy every influence of the sun's rays all winter. In March let them be plunged into a moderate hotbed, and the plants will soon after appear. This bed will cause them to be strong plants by the autumn; and when all danger of frost is over, they may be uncovered wholly, and permitted to enjoy the open air. In the autumn, they should be removed into the greenhouse, or set under a hotbed frame all winter; and in spring they should be placed where they are to continue, moulding them up the height of the pots; the pots being sufficiently broken to make way for their roots, as they shoot, and then left to Nature. The situation of the four tenderer sorts must be well sheltered, and if it be naturally rocky, sandy, and dry, it will be the better; for in the places where they grow naturally, they strike into the crevices of rocks, and flourish where there is hardly any appearance of soil.

This is one method of obtaining these shrubs. Another way is, by sowing the seeds in the places where they are to remain. The situation and nature of the soil should be as near that above described as possible; and the mould should be made fine in some places, and a seed or two sown in each. After this, pegs should be stuck down on each side of them, to direct to the places where they are sown. The exactest care must be observed, all summer, to pull up the weeds as often as they appear; for if they are permitted to get strong, and have great roots, they will pull up the seeds with them. In the spring following, if the seeds are good, the plants will appear. During the summer, they should be watered in dry weather; and, for the first winter or two, should have some furze bushes pricked all round them, at a proper distance, which will break the keen edge of the frosty winds, and preserve the young plants until they are strong enough to defend themselves.

The CNEORUM and the ALPINE CHAMELÆA are very hardy, and will grow in the coldest situation; but the other sorts should have a warm soil and a well sheltered site, or they will be subject to be destroyed in bad weather.

8. The SPURGE LAUREL, or EVERGREEN DAPHNE, is a low shrub, seldom growing more than three or four feet high; it sends out many branches from the bottom, and these are covered with a smooth light brown bark, that is very thick. The bark on the younger branches is smooth and green; and these are very closely garnished with leaves of a delightful strong lucid green colour. These leaves sit close to the branches, and are produced in such plenty, that they have the appearance, at a small distance, of clusters at

the ends of the branches. They are spear-shaped, shining, smooth, and thick; their edges are entire. HANBURY extols this plant with a degree of enthusiasm; continuing, "and this is another excellent property of this tree, that it is thus possessed of such delightful leaves for its ornament. These leaves, when growing under the drip of trees, spread open, and exhibit their green pure and untarnished, in its natural colour: when planted singly in exposed places, they naturally turn back with a kind of twist, and the natural green of the leaf is often alloyed with a browinish tinge. This shrub is also valuable on account of its flowers; not because they make any great show, but from their fragrance, and the time they appear; for it will be in blow the beginning of January, and will continue so until the middle or latter end of April before the flowers fall off; during which time they never fail to diffuse abroad their agreeable odours, which are refreshing and inoffensive. In the evenings especially, they are more than commonly liberal; insomuch that a few plants will often perfume the whole end of a garden; and when this happens early, before many flowers appear, the unskilful in flowers, perceiving an uncommon fragrancy, are at once struck with surprise, and immediately begin enquiring from whence it can proceed. Neither are its odours confined to a garden only; but, when planted near windows, they will enter parlours, and ascend even into bedchambers, to the great comfort of the possessor, and surprize of every fresh visitor." These flowers make but little show; for they are small, and of a greenish yellow. They are produced amongst the leaves from the sides of the stalks in small clusters, and will often be so hid by them, as to be unnoticed by any but the curious. They are succeeded by oval berries, which are first green, and afterwards black when ripe. These berries will be in such plenty as to be very ornamental; but will soon be eaten up by the birds; which is another good property of this tree, as it invites the different sorts of whistling birds to flock where it is planted in great plenty:

This shrub is PROPAGATED by seeds, in the same manner as the Common *Mezereon*. The seeds must be preserved from the birds by nets, until they are ripe. Soon after, they must be sown as is directed for the *Mezereon.* They will often be two years before they come up; during which time, and afterwards, they may have the same management as has been laid down for the Common *Mezereon,* until they be finally set out.

This shrub will grow in almost any soil or situation, but flourishes most under the shade and drip of taller plants, giving a peculiar chearfulness to the bottoms of groves and clumps in winter.

DIOSPYROS.

LINNEAN Class and Order, *Polygamia Dioecia:* Some of the plants of this genus bear hermaphrodite and female flowers upon the same individual, whilst others bear male flowers only; each of which contains eight stamina. There are five SPECIES; three of which are of late discovery: The other two are,

1. *Dio'spyros Lo'tus:* The INDIAN DATE PLUM; *a very tall deciduous shrub;* native of Africa and the South of Europe.

2. *Dio'spyros Virginia'na:* The PISHAMIN PLUM; *a very tall deciduous shrub;* native of Virginia, Carolina, and many parts of North America.

1. The INDIAN DATE PLUM will arrive at the height of more than twenty feet, and is an excellent tree for shade. It aspires with an upright stem, and the young branches are covered with a smooth whitish bark. The youngest twigs stand alternately on those of the preceeding year, and the buds for the next year's shoot begin to swell soon after the fall of the leaf. The leaves are of two colours; their upper surface is of a delightful green, and their lower of a whitish cast. They are of an oblong figure, end in a point, and are in length about four inches, and a half, and near two inches broad. They are placed alternately on the branches,

and several strong veins run alternately from the midrib to the borders, which are entire. These leaves will be of a deep green, even when they fall off in the autumn. The flowers have little beauty to recommend them: they are pitcher-shaped, and grow singly on short footstalks, on the sides of the branches: they are of a reddish colour, and are succeeded by largish black berries, which are eatable, like the medlar, when in a state of decay.

2. The PISHAMIN PLUM will not aspire to the height of the former species, though it will sometimes grow to near twenty feet. The branches of this tree are whitish, smooth, and produced in an irregular manner. The leaves are very large and beautful; about five or six inches long, and three broad. Their upper surface is smooth, and both sides are of a beautiful green. They are of an oblong figure, end in a point, grow irregularly on the branches, and have several veins running from the midribs to the borders, which are entire. They fall off in the autumn, at the coming on of the first frosts, when their colour will be that of a purplish red. The flowers, like those of the other sort, make no great appearance; but are succeeded by a fruit, which is eatable, when, like medlars, it is in a state of decay.

Both these sorts are PROPAGATED from the seeds, which we receive from abroad, in the spring. The compost proper for their reception is maiden earth, from a rich pasture, dug up sward and all a year before, and three or four times turned in order to rot the sward. This being made fine, a fourth part of drift or sea sand should be added; and being all well mixed, the seeds should be sown in pots or boxes, three quarters of an inch deep. The pots should afterwards be placed in a shady place during the summer; for the seeds rarely come up until the second spring; and in the autumn they should be removed into a well sheltered place, where they may enjoy the benefit of the sun all winter. In the spring the plants will come up; and if they are assisted by plunging the pots into a moderate hotbed, it will make them shoot stronger; though this is not absolutely necessary. All the summer they should stand in a shady place, where they may have free air; and, if the weather prove dry, they, should be watered every other evening. At the approach of winter, they should be removed into the greenhouse, or placed under a hotbed frame, or some shelter; and when all danger of frost is over, they must be put in the same shady situation as in the former summer. In the winter also they should be hooped as before; and in spring may be planted in the nursery ground. These plants, when they get tolerably strong, are very hardy; though even then the ends of the branches are subject to be killed; so that when they are seedlings, or very young, they will be in danger of being destroyed by the frosts, which makes the above-directed care and protection necessary till they have gained strength.

ELÆAGNUS.

LINNEAN Class and Order, *Tetrandria Monogynia*; Each flower contains four males and one female. There are four SPECIES; two of which have been introduced into this country; one of them requiring a stove heat; the other sufficiently hardy to bear the open air; namely,

Elæa'gnus Angustifo'lia; The NARROW-LEAVED ELÆAGNUS, or the OLEASTER, or the WILD OLIVE; *a tall deciduous shrub*; native of Bohemia, Spain, Syria, and Cappadocia.

The NARROW-LEAVED ELÆAGNUS, or the OLEASTER, will grow to be near twenty feet high. Whilst the leaves of most trees are possessed of a verdure, and occasion variety by the difference of greens they exhibit, the leaves of the plant under consideration are white, especially the under side, and stand upon white twigs. The branches are of a brown colour; but the preceding year's shoots are white and downy, the silvery leaves being placed irregularly upon them: These are of a spear-shaped figure, about two, and sometimes three inches long, and three quarters of an inch broad, and are as soft as satin to the touch. Neither is summer the only time the leaves afford us pleasure: They continue on the tree great part of the winter; so that the effect they cause, when other trees are despoiled of their honours, may be easily conceived. The flowers appear in July, but make no figure: They are small, and come out at the footstalks of the leaves; their colour is white, and they are possessed of a strong scent. The fruit that succeeds them much resembles a small olive.

This shrub has a *Variety*, with yellow flowers.

The culture of both the sorts is very easy. They are PROPAGATED by cuttings, which must be of the last summer's shoot. But in order to have them proper for the purpose, a sufficient number of trees must be fixed on, from which the family is to be encreased. They must be headed near the ground in the winter; which will cause them to make strong shoots the succeeding summer, and these shoots afford the cuttings. They should be taken off in the autumn, and cut into lengths of about a foot each, three parts of which should be set in the ground. They may be planted very close, and in the autumn following removed into the nursery, where they should be set a foot asunder, and two feet distant in the rows; or, if there be ground enough, they may be planted thinner, and so will want no removing until they be finally set out. The best soil for these cuttings is a rich garden mould, inclined to be moist, and lying in a shady place; in such a soil and situation almost every cutting will grow. The tree itself is exceedingly hardy, and will afterwards shoot vigorously, in almost any soil or station.

EPHEDRA.

LINNEAN Class and Order, *Dioecia Monadelphia*: Male flower, containing seven stamina connected at the base, and female flowers containing two pistils, situated upon distinct plants. There are two SPECIES; one of them of a hardy nature.

E'PHEDRA *Dista'chya:* The EPHEDRA, or SHRUBBY HORSE TAIL; *a sub-evergreen shrub;* native of rocky mountains, near the sea coast of Italy, France, and Spain.

The EPHEDRA will grow to three, four, five, or six feet high, according to the nature of the soil in which it is placed; for if it be a fat moist soil, it will arrive to double the height it will attain in that of a contrary nature, and will be more tree-like; it will also have much larger leaves, and be more beautiful. The bark on the old stem is rough, and of a dark dirty colour. These stems or branches are few: but they have joints at short intervals. Many of them are protuberant, and send forth younger shoots and leaves in prodigious plenty, so as to cause the shrub to have a close bushy look. The older branches will have bark that is smooth, and of a brown, reddish, or yellowish colour; whilst that on the younger shoots will be of a fine green. The larger branches are jointed and hollow, though they have sometimes in them a kind of reddish pith; those send forth smaller, which are called the leaves. These leaves are jointed, grow opposite by pairs; are alternately produced at every joint in opposite directions, and will thus branch out in a singular and horse tail manner, in a suitable soil, to a great length. The leaves and shoots of this shrub being bruised in the winter, emit a very fetid disagreeable scent; but in the spring when the juices begin to flow, they are possessed of a different quality, emitting a fine odour, by many supposed or fancied to be like that of the pine apple; and on account of this scent alone, in the spring, this tree is by many much coveted and admired. The flower buds will appear in May opposite at the sides of the joints; they grow by pairs, and by the middle of June will be in full blow, each standing on very short green footstalks. Male and female flowers will be found on different plants; they are small, and of a yellow colour, and afford pleasure only to the nice observer of the wonderful structure of the minute parts of the vegetable world. This shrub should always have a moist, fat soil; and in those places it will appear more luxuriant and beautiful. It is very hardy, and, although it has been used to be preserved in pots in greenhouses, will bear the cold of our severest winters. In the winter the leaves, or rather the young shoots or joints, are of a dark, dusky green; but as the spring approaches, that goes off, and a fine lively, chearful green possesses the whole plant. The old leaves fall off the latter end of April, or beginning of May; at which time the tree will send forth young ones, and will continue to do so until late in the autumn.

This shrub is very easily PROPAGATED; it will, indeed, propagate itself in great plenty, especially if planted in a light, moist soil: so that where a quantity is wanted, some plants are to be procured for breeders; and these being planted in good light earth, will soon spread their roots, and produce plenty of *suckers*, which may be taken off, and planted in the nursery ground, to gain strength, for a year or two; or they may be immediately, especially the strongest plants, finally set out. As these shrubs naturally spawn, and produce suckers in great plenty, after they are planted out in the shrubery quarters, the spawn should be every year taken off, and the ground dug about the roots; otherwise they will not only appear rambling and irregular, but they will diminish the beauty of the mother plants, which will by no means appear to be luxuriant and healthy.

This plant merits a place amongst evergreens, rather for the sake of variety, or as a foil to more elegant species, than for any intrinsic beauty or elegance of its own. MILLER says, it rarely flowers in gardens.

EUONYMUS.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are four SPECIES; three of which are cultivated in this country; one of them, however, requires a stove heat: The other two are,

1. EUO'NYMUS *Europæ'us*: The COMMON or EUROPEAN EUONYMUS, or the SPINDLE TREE; *a*

deciduous shrub; native of some parts of England, and of Europe in general.

2. EUO'NYMUS *America'nus:* The EVERGREEN or AMERICAN EUONYMUS; or the EVERGREEN SPINDLE; *an evergreen shrub;* native of Virginia, Carolina, and other parts of North America.

1. The COMMON EUONYMUS. There are of this species five *Varieties:*

The Deep Red-berried Narrow-leaved Spindle Tree.
——Pale Red-berried Spindle Tree.
——White-berried Narrow-leaved Spindle Tree.
——Broad-leaved Spindle Tree.
——Variegated Spindle Tree*.

The *Narrow-leaved Spindle Tree* will grow to be sixteen or eighteen feet high, will aspire with an upright stem to a considerable height, naturally forming itself into a regular head. The bark of the stem is of a dark brown; but that of the first and second year's shoots is smooth, and of a fine green, the White-berried sort especially, which differs from the Red-berried in this respect, as the shoots of that are browner. The leaves are spear-shaped, of a fine deep green colour, about three inches long, and an inch and a half broad, very slightly serrated, and placed nearly opposite on the branches. The flowers have little beauty to recommend them; They are small, and of a greenish colour, produced in small bunches from the sides of the branches, the latter end of May, the bunches hanging on long footstalks; and are succeeded by fruit, which constitutes the greatest beauty of these plants. The seeds are of a delightful scarlet; four are contained in each vessel; and these opening, expose them to view all over the head of the plant, some just peeping out of their cells, others quite out, and sticking to the edge; and these vessels being in bunches on long pendulent footstalks, have a look which is singularly beautiful. The seed vessels of the first-mentioned sort are of the same deep scarlet with the seeds; those of the second, of a paler red; those of the third are white, which, together with the twigs of the latter being of a lighter green, constitute the only difference between these sorts; for the seeds themselves of all the sorts are of a deep scarlet.

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* MILLER makes the two last distinct *Species;* but HANBURY says, "I have raised thousands of them for sale (there being hardly any shrub more called for), and ever found the seeds of the Broad-leaved Spindle Tree to come up the Common Narrow-leaved sort."

The *Broad-leaved Spindle Tree* is a *Variety* of the Common Spindle Tree, though it will grow to a greater height than either of the other sorts. It will arrive at near five and twenty feet high; and the branches are fewer, and the leaves broader. The young shoots are smooth, of a purplish colour; and the buds at the ends of them, by the end of October, will begin to be swelled, and be near an inch long, preparing for the next year's shoot. The leaves are much larger than those of the other sorts, being, on a thriving plant, near five inches long and two broad. Their figure is like the other, though rather inclined to an oblong oval; Some are most slightly serrated, of a light green, stand opposite by pairs, and fall off much sooner in the autumn, before which their colour will be red. The flowers make an inconsiderable figure, though they are rather larger than the other sorts; The seeds that succeed them with their vessels also are proportionably larger; and many of the common footstalks to each bunch will be four inches, which causes a more noble look in the autumn; though the others are equally pleasing, as the flowers are produced on the Narrow-leaved sorts in great plenty: Add to this, the berries of the Broad will fall off long before the others.

The wood of the Common Spindle Tree is spoken of by MILLER and HANBURY as being very valuable. The musical instrument makers, say they, use it for keys of organs, and other purposes. Toothpicks, skewers, and *spindles* of the best kind are also made from this wood; hence *Spindle Tree*.

There is but one good method of PROPAGATING the Common Spindle Tree, and that is by seeds; though it may easily be done by layers or cuttings; for if the young shoots be laid in the ground in the autumn, they will have struck root by the autumn following; and if cuttings are planted in the autumn in a moist rich earth, that is shaded, many of them will grow; but neither of these methods will produce such fine upright plants, or that will grow to such a height as those raised from seeds, though they will be every whit as prolific of flowers and fruit. Whoever has not the convenience of procuring the seeds, let him improve these hints, if he has got a plant or two, which will be sufficient for his purpose: Whoever can get the seeds, had better never attempt those arts. The seeds should be sown in the autumn, soon after they are ripe. They will thrive in almost any soil or situation, if it be made fine, and clear of the roots of all weeds, &c. though if it be a fine garden mould, it will be the better. They should be sown three fourths of an inch deep. It seldom happens that more than a few odd plants come up the first spring; the beds must, therefore, remain untouched until the spring twelvemonth after sowing; only constant weeding must be observed. At that time the plants will come up very thick, and all the summer they must be weeded. In this seed bed they may stand two years, and be then planted out in the nursery, where they may remain, with no other care than weeding and digging between the rows in winter, until they are finally planted out.

The Broad-leaved sort will take very well by budding it on the Common. The stocks for this purpose should be planted out when they are one year's seedlings, and by the summer twelvemonth after they will be fit for working; so that whoever has young plants of the Common sort, and only one of the other, may encrease his number this way.

2. The EVERGREEN EUONYMUS. Besides the genuine species, there is a *Variety* of the *Americanus*, having its leaves beautifully striped with yellow. These sorts grow to the height of about seven feet. The branches are slender, covered with a smooth green bark, and grow opposite by pairs at the joints. The leaves also grow opposite, are spear-shaped, and have a strong midrib running their whole length. The upper surface is of a fine strong green colour, but their under is paler. They are smooth, are lightly indented, acutely pointed, and justly entitle this shrub to be called a fine evergreen. The flowers are produced in July, from the sides and ends of the branches, in small bunches. They make no great show; but

they will be succeeded by rough, warted, red, five-cornered capsules, containing the seeds.

This species is to be PROPAGATED in the same manner as the other sorts. 1. The best way is from seeds, which we receive from Virginia. These will be two, and sometimes three years before they appear; so that a person should not be too hasty in disturbing the beds; and after this precaution, what has been already said relating to the management of raising the common Sorts of Spindle Trees from seeds, must constantly be observed in this species. 2. By layers also, and cuttings, it may be encreased; but when the latter way is to be practised, it will be proper to plant each cutting separately in a small pot, and plunge them into a bark bed; otherwise it is very seldom that they will grow. After they have taken root, the pots may be set in the natural mould up to the rims for about two years; then the plants should be turned out into the places where they are to remain, and they will be sure of growing.

FAGUS.

LINNEAN Class and Order, *Monoecia Polyandria*: Male flowers and female flowers upon the same plant; the Males containing about twelve stamina, and the females three pistils each: There are three SPECIES:

1. *Fa'gus Sylva'tica:* The BEECH; a well known *tall deciduous tree;* common in England and most parts of Europe, also in Canada.

2. *Fa'gus Casta'nea:* The CHESNUT, or the SPANISH or SWEET CHESNUT; *a tall deciduous tree;* natural to the mountainous parts of the South of Europe.

3. *Fa'gus Pu'mila:* The DWARF CHESNUT, or the CHINQUEPIN; *a deciduous shrub;* native of North America.

1. The BEECH. In stateliness, and grandeur of outline, the Beech vies with the Oak. Its foliage is

peculiarly soft and pleasing to the eye; its branches are numerous and spreading; and its stem waxes to a great size. The bark of the Beech is remarkably smooth, and of a silvery cast; this, added to the splendor and smoothness of its foliage, gives a striking neatness and delicacy to its general appearance. The Beech therefore standing singly, and suffered to form its own natural head, is highly *ornamental;* and its leaves varying their hue as the autumn approaches, renders it in this point of view still more desirable. In point of actual *Use* the Beech follows next to the Oak and the Ash: it is almost as necessary to the cabinet makers and turners (especially about the Metropolis), as the Oak is to the ship builder, or the Ash to the plough and cart wright. EVELYN nevertheless condemns it in pointed and general terms; because "where it lies dry, or wet and dry, it is exceedingly obnoxious to the worm:" He adds, however, "but being put ten days in water, it will exceedingly resist the worm." The natural soil and situation of the Beech is upon dry, chalky, or limestone heights: It grows to a great size upon the hills of Surry and Kent; as also upon the declivities of the Cotswold and Stroudwater hills of Gloucestershire, and flourishes exceedingly upon the bleak banks of the Wye, in Hereford and Monmouth shires, where it is much used in making charcoal. In situations like those, and where it is not already prevalent, the Beech, whether as a timber tree or as an underwood, is an object worthy the planter's attention. The Beech also thrives abundantly on the thin-soiled slatestone hills of Devonshire, and not less among the granite rocks of the Highlands of Scotland. It has lately been discovered, that the wood of the Beech is very durable in water.

The method of PROPAGATING the Beech is from seeds. EVELYN is brief upon this head. For woods, he says, the Beech must be governed as the Oak:—In nurseries, as the Ash; sowing the masts "in autumn, or later, even after January, or rather nearer the spring, to preserve them from vermin, which are very great devourers of them. But they are likewise to be planted of young seedlings to be drawn out of the places where the fruitful trees abound." MILLER says, the season for sowing the masts "is any time from October to February, only observing to secure the seeds from vermin when early sowed, which if carefully done, the sooner they are sown the better, after they are fully ripe." HANBURY orders a sufficient quantity of masts to be gathered about the middle of September, when they begin to fall: These are to be "spread upon a mat in an airy place six days to dry; and after that you may either proceed to sow them immediately, or you may put them up in bags in order to sow them nearer the spring; which method I would rather advise, as they will keep very well, and there will be less danger of having them destroyed by mice or other vermin, by which kinds of animals they are greatly relished." They must be sown in beds properly prepared (as directed under the article PROPAGATION FROM SEED, in the Introductory Part of this Work) about an inch deep. In the first spring many of the young plants will appear, whilst others will not come up till the spring following. Having stood two years in the seminary, they should be removed to the nursery, where they may remain till wanted. More is said of the Beech under WOODLANDS.

2. The CHESNUT. This is a tree of the first magnitude; growing to a great height, and swelling to an immense size. Mr. Brydone, in a Tour through Sicily and Malta, measured the ruins of a celebrated Chesnut, called *Castagno de Cento Cavalli*, standing at the foot of Mount Etna, and made it "two hundred and four feet round!" The largest we know of in this country stands at Tortworth, near Berkeley in Gloucestershire. Sir Robert Atkins, in his History of Gloucestershire, says, "By tradition this tree was growing in King John's reign; and Mr. Marsham calculates it to be "not less than eleven hundred years old." Sir Robert makes it nineteen yards, and Mr. Marsham forty-six feet six inches in circumference. With great deference however to the authority and veracity of these gentlemen, we have every reason to believe that what is called the Tortworth Chesnut is not one, but two trees: supposing them to be only one, its dimensions are by no means equal to what are given above. We have the highest opinion of Mr. Marsham's ingenuousness and accuracy: and fortunately, in this case, he has fur-

nished us with a proof of his candour, in saying, " As I took the measure in a heavy rain, and did not measure the string till after I returned to the inn, I cannot so well answer for this as the other measures." We will venture to add, that had the day been fine, and Mr. Marsham had viewed the *field* side as well as the *garden* side of this venerable ruin; had he climbed upon the wall, and seen the gable of the old building, adjoining, clasped in between the two stems; and had further ascended to the top of the old stump, which is not more than twelve feet high, and, looking down its hollowness, seen its cavity tending not to the centre of the *congeries*, but to the centre of the *old Tree*, we are convinced he would not have suffered so inaccurate an account to have been published with his signature, as that which appears in page 81 of the First Volume of Papers of the Bath Agriculture Society. The leaves of the Chesnut are long, somewhat large, strongly marked by the nerves, and of a dark and somewhat glossy appearance, in summer; but, in autumn, change to a yellow hue. In open uncrouded situations, the Chesnut throws out large spreading arms, forming a magnificent strongly-featured outline; whilst in a close planted grove the stem will shoot up clean and straight as an arrow to a great height.

As an *Ornamental*, the Chesnut, though unequal to the Oak, the Beech, and the Esculus, has a degree of greatness belonging to it which recommends it strongly to the gardener's attention. Its *Uses* have been highly extolled; and it may deserve a considerable share of the praise which has been given it. As a substitute for the Oak, it is preferable to the Elm: For door jambs, window frames, and some other purposes of the house carpenter, it is nearly equal to Oak itself; but it is liable to be *shakey*, and there is a deceitful brittleness in it which renders it unsafe to be used as beams, or in any other situation where an uncertain load is required to be borne. It is universally allowed to be excellent for liquor casks; as not being liable to shrink, nor to change the colour of the liquor it contains: it is also strongly recommended as an underwood for hop poles, stakes, &c. Its fruit too is valuable, not only for swine and deer, but as a human food: Bread is said to have been made of it. Upon the whole, the Chesnut, whether in the light of ornament or use, is undoubtedly an object of the planter's notice.

While young and in full growth, the Chesnut affords wood of a very superior quality, for many purposes. Its shakeyness and brittleness of texture arise, in some measure, from its being suffered to stand too long. For hop poles no wood is equal to it: for gate posts or any work where it is proper that timber should be placed in contact with the ground, the wood of the Chesnut is found preferable to any other, except those of the Yew and the Larch.

The PROPAGATION of the Chesnut is chiefly from seeds: EVELYN says, "Let the nuts be first spread to sweat, then cover them in sand; a month being past, plunge them in water, and reject the swimmers; being dried for thirty days more, sand them again, and to the water ordeal as before. Being thus treated until the beginning of spring, or in November, set them as you would do Beans; and, as some practise it, drenched for a night or more in new milk; but with half this preparation they need only to be put into the holes with the point upmost, as you plant tulips."—"If you design to set them in winter or autumn, I counsel you to inter them in their husks, which being every way armed, are a good protection against the mouse, and a providential integument."—"Being come up, they thrive best unremoved, making a great stand for at least two years upon every transplanting; yet if needs you must alter their station, let it be done about November."—Thus far EVELYN. MILLER cautions us against purchasing foreign nuts that have been kiln dried, which, he says, is generally done to prevent their sprouting in their passage; therefore, he adds, "if they cannot be procured fresh from the tree, it will be much better to use those of the growth of England, which are full as good to sow for timber or beauty as any of the foreign nuts, though their fruit is much smaller." He also recommends preserving them in sand, and proving them in water. In setting these seeds or nuts, he says, "The best way is to make a drill with a hoe (as is commonly practised for kidney beans) about four inches deep, in which you should place the nuts, at about four inches distance, with their eye uppermost: then draw the earth over them with a rake, and make a second drill at about a foot distance from the former, proceeding as before, allowing three or four rows in each bed."—"In April" (he does not mention the time of sowing) "these nuts will appear above ground; you must therefore observe to keep them clear from weeds, especially while young: in these beds they may remain for two years, when you should remove them into a nursery at a wider distance. The best time for transplanting these trees is either in October, or the latter end of February, but October is the best season: the distance these should have in the nursery is three feet row from row, and one foot in the rows. If these trees have a downright tap root, it should be cut off, especially if they are intended to be removed again; this will occasion their putting out lateral shoots, and render them less subject to miscarry when they are removed for good. The time generally allowed them in the nursery is three or four years, according to their growth, but the younger they are transplanted the better they will succeed. Young trees of this sort are very apt to have crooked stems; but when they are transplanted out and have room to grow, as they encrease in bulk they will grow more upright, and their stems will become straight, as I have frequently observed where there have been great plantations."—HANBURY follows MILLER almost literally; except that he mentions February as the time of sowing; and recommends that the young plants, a year after they have been planted in the nursery, be cut down to within an inch of the ground; which, he says, "will cause them to shoot vigorously with one strong and straight stem." There is one material objection against sowing Chesnuts in drills, which are well known to serve as guides or conductors to the field mouse, who will run from one end to the other of a drill without letting a single nut escape her: we rather recommend setting them with a dibble, either promiscuously or a quincunx, at about six inches distance.

EVELYN says, that coppices of Chesnuts may be thickened by layering the tender young shoots; but adds, that "such as spring from the nuts and marrons are best of all." There is a striped-leaved variegation which is continued by budding; and the French are said to graft Chesnuts for their fruit; but MILLER says, such grafted trees are unfit for timber.

The Chesnut will thrive upon almost any soil which lies out of the water's way; but disaffects wet moory land*. See more of this tree under WOODLANDS.

3. The DWARF CHESNUT grows to about eight or ten feet high. The stem is of a brown colour, and divides into several branches near the the top. The leaves are of an oval, spear-shaped figure, acutely serrated, with a hoary cast on their under side. The flowers come out in the spring, in slender knotted catkins: They are of a greenish yellow colour, and are very seldom succeeded by ripe seeds in England. This tree is hardy, and thrives best in a moist soil and shady situation.

The method of PROPAGATING the Dwarf Chesnut is from seeds, which we receive from America. These should be planted in drills, as soon as they arrive, in a moistish bed of rich garden mould. If the seeds are good, they will come up pretty soon in the spring. After they appear, they will require no trouble, except keeping them clean from weeds, and watering them in dry weather. They may stand in the seed bed two years, and be afterwards planted in the nursery ground at a foot asunder and two feet distance in the rows; and here when they are got strong plants, they will be fit for any purpose.

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* The Chesnut flourishes in the Vallies of the Highlands; particularly at Taymouth and Dunkeld. It seems to dislike stiff cold land.

occupiers of land, and, indeed, for the community at large, if a severe penalty was laid upon planting it in any other situation. To enumerate the *Uses* of the Ash would require a separate volume: in this point of view it undoubtedly stands next to the Oak. The Farmer would find it difficult to carry on his business without it: and indeed, the cooper and the coachmaker would be equally at a loss with the wheelwright, should a scarcity of Ash take place; and we know of no species of timber so likely to be worn out in this country as the Ash. The just complaints of the Husbandman are expelling it very properly from our hedges; and we are concerned to see, amongst the numerous plantations which have of late years been made, so few of this necessary tree: it is therefore more than probable that no tree will pay better for planting; not, however, in single trees and hedge-rows, but in close plantations, in the manner which is pointed out under WOODLANDS.

The method of PROPAGATING the Ash is from seeds; which are peculiarly prone to vegetation, and frequently catch under or near the tree they are produced upon, from whence tolerable plants may sometimes be collected; but in general they are either cropt by cattle, or are drawn up slender and ill rooted, and seldom make so good plants as those raised by the gardener's assistance in a prepared seed bed. EVELYN directs us to gather the keys from a young thriving tree in October or November, and having laid them to dry, sow them "any time betwixt then and Christmas; but not altogether so deep as your former masts" (meaning those of Beech, Hornbeam, &c.). "Thus they do in Spain, from whence it were good to procure some of the keys from their best trees." He recommends the young plants' standing two years in the seminary, and cautions us, in removing them into the nursery, "not to cut their head at all, which being young is pithy, nor by an means the fibrous part of the roots; only that downright or tap root, which gives our husbandmen so much trouble in drawing, is to be totally abated; but this work ought to be in the increase of October or November, and not in the spring. We are, as I told you, willing to spare his head rather than the side branches (which whilst young may be cut close), because being yet young, it is but of a spungy substance; but being once fixed, you may cut him as close to the earth as you please; it will cause him to shoot prodigiously, so as in a few years to be fit for pike staves."—"Young ashes are sometimes in winter frost-burnt, black as coals; and then to use the knife is seasonable, though they do commonly recover of themselves slowly." He adds, "You may accelerate their springing by laying the keys in sand, and some moist earth, *stratum super stratum;*" but does not say that this preparation will cause them to vegetate the first spring. MILLER says, "the seeds should be sown as soon as they are ripe, and then the plants will come up the following spring; but if the seeds be kept out of the ground till spring, the plants will not come up till the year after."—"If they make good progress in the seed bed, (he says) they will be fit to transplant by the following autumn,"——"as soon as their leaves begin to fall." Great care (he says) is necessary in taking them up: they should not be drawn, but taken up with a spade; clearing the whole bed at once, placing the larger together in rows, and the smaller by themselves. "The rows should be three feet asunder, and the plants a foot and a half distance in the rows: in this nursery they may remain two years, by which time they will be strong enough to plant where they are to remain; for the younger they are planted the larger they will grow."——HANBURY is very deficient upon the subject of raising Ashes in the nursery way: he does not even tell us the depth at which the keys are to be sown; nor, except in general terms, when they are to be sown; namely, "soon after they are gathered."——We beg leave, however, to differ from these three great authorities. Instead of sowing the keys in autumn, presently after they are gathered, we venture to recommend their being sown in the spring, in the first favourable opportunity in February or March; for being sown in autumn some few may, and in general will, vegetate the first spring, whilst much the greatest part will lie in the ground until the spring following: the few that come up will be an incumbrance upon the beds, and will render the expence of clearing them the first summer unnecessarily great; whereas, on the contrary, if the sowing be deferred until spring, the hoe and rake will have free range over the beds, and the expence of cleaning them the first summer will be comparatively trifling. If the keys be well cured by spreading them thin in an airy place, and keeping them turned for a few days after gathering, they may be kept in a heap (moving them now and then) until spring, with safety. The depth proper for sowing Ashen keys is from one inch to an inch and a half or two inches, according to the stiffness or the lightness of the soil of the seed bed. If they be sown too deep in a close-textured soil, they will be apt to be smothered; and if too shallow in a porous one, the drought has too much power over them, and they are liable to be disturbed by the hoe and rake in clearing them the first summer after sowing. Upon the approach of the second spring, the surface of the beds should be made as light and pulverous as possible, in order to give to the embryo plants a free admission of air, and to facilitate their rising: if part of the stale mould be raked off, and a little fresh earth be sifted over in its stead, it will add considerable vigour to the young plants; which may be removed into the nursery when ever the croudedness of the beds, the strength of the plants, or the conveniency of the planter, may render it requisite. For raising groves of Ash see WOODLANDS.

There are three *Varieties* of the Common Ash: The *Silver-striped;* the *Gold-striped;* and the *Yellow-coloured Ash.* These *Varieties* may be continued by *budding.*

Evelyn tells us, " that Ash may be propagated from a bough *slipt* off with some of the old wood, a little before the bud swells, but with difficulty by *layers.*

The Ash will thrive in almost any soil; but delights most in a moist situation, so that it stand above the level of stagnant water; in marshes, half-drained bogs, and by the sides of rivers, it flourishes extraordinarily, outgrowing even many of the aquatics themselves.

2. The FLOWERING ASH. Of this species there are two kinds or *Varieties:* The *Virginia Flowering Ash;*— and the *Dwarf Ash of Theophrastus.*

The *Virginia Flowering Ash* when in blow is inferior in beauty to few of our flowering trees. It will grow to near thirty feet in height. The branches of this sort, in the winter, have nearly the same appearance with the Common; only they are, especially the youngest, more inclined to a black cast: The buds also, which will begin to swell in the autumn, are of that hue. The branches will not burn, when green, so well as those of the Common Ash. The leaves are of a fine green, smooth, serrated, and consist of about three or four pair of folioles, placed a good way asunder along the midrib; and they are usually terminated by an odd one. The midrib is long, but not straight; swelling where the leaves, which fall off early in the autumn, come out. The flowers are white, produced in May, in large bunches, at the ends of the branches. HANBURY says, "I have had this tree, the second year from the bud, produce, on the leading shoot, a tuft of flowers; and although this is not common, yet, when it gets to be about ten feet high, almost every twig will be terminated with them. The flowers exhibit themselves not in a gaudy dress, but in a loose easy manner, all over the tree, which, together with the green leaves peeping from amongst this white bloom, makes the appearance extremely pleasing. I have never yet known the flowers to be succeeded by seeds."

Dwarf Ash of Theophrastus is, as the name imports, a low tree for the Ash tribe; about fourteen or fifteen feet is the height it generally aspires to. The branches are smooth, and of a darkish green. The leaves are pinnated, of a dark green, and serrated on the edges, but proportionably smaller than those of the Common Ash. The flowers of this sort make no show, though they are possessed of the petals necessary to complete a flower, which are denied the Common Ash.

3. AMERICAN ASH. The *Varieties* of this species are, *Manna Ash*, *White Ash*, *Red Ash*, *Black Ash*, and *New-discovered Ash*.

Manna Ash will grow to about twenty feet high. It will sometimes shoot eight feet the first year from the bud, though it seldom shoots more than two feet in a summer afterwards. The bark of the young shoots is smooth, of a brownish green, and has a few grayish spots. The leaves are composed of four or five pair of folioles, placed on a straight midrib; they are of a fine pleasant green, and more acutely and deeply serrated than any of the other sorts. The flowers make no show: They are partly the colour of those of the Common Ash, and are produced, like them, early in the spring, before the leaves appear.

White Ash is so called from the whitish colour of the young branches in winter. They are spotted all over with many white spots, which makes their colour that of a lightish gray. This sort will arrive to about thirty feet high; and the branches are strong, and produced in an irregular manner. The folioles which compose the leaves are of a light green, and obtusely sawed on the edges: they seldom consist of more than three pair, with the usual odd one, which has a long point; and these are placed far asunder, on the midrib. These leaves fall off early in the autumn, when they are of a light colour: This together with the gray branches make the tree have a whitish look. The flowers are produced in the spring, and make no show. This sort is commonly called the New-England Ash.

Red Ash. The Red Ash is a stronger shooting tree than any of the former, the Common Ash excepted. The branches, which are fewer, are smooth, and the young shoots are of a reddish colour in the autumn. The leaves of this sort make the most noble figure of any of the others; for although they are seldom composed of more than three pair of folioles, besides the odd one, yet these are exceedingly large, especially the odd one, which will be sometimes six inches long, and three and a half broad. The pair next it, also, will be fine and large; though they diminish in size as they get nearer the base of the footstalk. These folioles are distinctly sawed on their edges, are of a fine light-green during the summer, and in the autumn die to a red colour; from which circumstance, together with that of their red twigs, this sort takes the denomination of the Red Ash. It has its seeds very broad, and is commonly called the Carolina Ash.

Black Ash we receive from abroad by that name; though it is difficult to see the propriety of its being so called. The colour of the shoots is nearly like that of the White Ash; but they shoot stronger, and promise to form a larger tree. The leaves are large, and ribbed underneath; of a very dark green, and die to a still darker in the autumn. The folioles are not so large as those of the Red sort, but they quit the tree about the same time. The keys are very broad, and, when we receive them, of a blackish colour.

" *New-discovered Ash* I received from Pennsylvania, where it was discovered growing in the woods near Philadelphia. The keys are very small and flat, and come up in a fortnight after being sown. The young shoots of this sort are covered with the same kind of bark as the White Ash, and the leaves nearly resemble those of the Black Ash, though they are not quite so large." HANBURY.

All the sorts of foreign Ashes are easily PROPAGATED. 1. By seeds, if they can be procured from abroad. We often have them in February; and if they are sown directly, they will sometimes come up the beginning of May, though they generally lie, or at least the greatest part of them, until the spring following. The beds may be made in any part of the garden; and almost any sort of garden mould, made fine, will do for the purpose. After the seeds are sown, they will want no other care than weeding, until the plants are a year or two old in the seed bed, when they may be taken up, and planted in the nursery, at the usual distance of a foot asunder, and two feet in the rows, which will be sufficient for them until they are finally taken up. 2. Budding is another good method of propagating these trees; so that those who have not the convenience of a correspondence in the countries where they grow naturally, should procure a plant or two of a sort, and raise young Ashes of the Common sort for stocks. These stocks should be planted out in the nursery, a foot asunder, and two feet distant in the rows. When they are one year old, and grown to be about the thickness of a bean straw, they will be of a proper size for working. A little after Midsummer is the time for the operation; and care must be observed not to bind the eye too tight. They need not be unloosed before the latter end of September. In March, the head of the stock should be taken off, a little above the eye; and by the end of the summer following, if the land be good, they will have made surprising strong shoots, many of them six feet or more.

GENISTA.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males standing in two divisions: There are fourteen SPECIES; seven of which come under our notice:

1 GENI'STA *Tridenta'ta*: The PORTUGAL BROOM; *a deciduous shrub;* native of Portugal and Spain.

2. GENI'STA *Tincto'ria*: The DYER's BROOM, or WOODWAXEN; *a low deciduous shrub;* native of England and Germany.

3. GENI'STA *Pilo'sa*: The BRANCHING BROOM; *a deciduous shrub;* native of Hungary, Germany, and France.

4. GENI'STA *Anglica*: The DWARF ENGLISH BROOM, or PETTY WHIN; *a deciduous shrub;* natural to moist, heathy grounds in several parts of England.

5. GENI'STA *Germa'nica*: The PRICKLY GERMAN BROOM; *a low deciduous shrub;* native of Germany.

6. GENI'STA *Hispa'nica*: The PRICKLY SPANISH BROOM; *a deciduous shrub;* native of Spain and France.

7. GEN'ISTA *Ca'ndicans*: The ITALIAN BROOM, or THE CYTISUS OF MONTPELIER; *a low deciduous shrub;* native of Italy and about Montpelier in France.

⁂ For another Class of BROOMS, see SPARTIUM.

1. The PORTUGAL BROOM is one of the larger growers: It will arrive to be five or six feet high: the branches are very slender, tough, and for the most part three-cornered and jointed. The leaves end in three points, and are small; though some of them will be produced by threes, in such a manner as to be entirely trifoliate leaves; whilst others again are often found single. By the beginning of May, this shrub will be in blow. The flowers, which are yellow and of the butterfly

are at a remote distance from such places, as it has many natural beauties to recommend it? It is a low plant, seldom growing to be more than two feet high; on which account no garden is so small but it may be there planted, if the commonness of it be no objection to the owner. This shrub has some single, long spines, though the flower branches are entirely free from them. The leaves, like the shrub, are proportionally small, of a lanceolated figure, and grow alternately on the branches. The flowers, which are of a fine yellow, are produced the beginning of May in clusters, at the ends of the branches; and are succeeded by thick short pods, in which the seeds are contained.

5. GERMAN PRICKLY BROOM will grow to be about a yard high. This shrub is armed with many compound spines; the branches are slender and numerous, though those that produce the flowers are entirely free from spines. The leaves of this sort, also, are small, and of a lanceolate figure, and grow alternately on the branches. The flowers are produced in plenty at the ends of the branches, in June: They are of the colour and figure of the others, and are succeeded by pods, in which the seeds are contained.

6. PRICKLY SPANISH BROOM will grow to be five or six feet high. This shrub is possessesed of many compound spines; though the branches that produce the flowers are entirely free from them. The leaves are exceedingly narrow, many of them being no wider than a thread, but very hairy. The flowers are yellow, produced in May, in clusters, at the ends of the branches; and are succeeded by hairy compressed pods, in which the seeds are contained.

7. ITALIAN BROOM rises, with an erect, shrubby, branching, striated stalk, to the height of about a yard. The leaves are trifoliate, oval, and hairy underneath. The flowers come out on leafy footstalks, from the sides of the branches: They are of a bright yellow colour, appear in June, and are succeeded by hairy pods containing ripe seeds, in September.

The best way of PROPAGATING all these sorts is by seeds; and if these are sown soon after they are ripe, they will come up earlier in the spring, and make better plants by the autumn. They should only stand one year in the seed bed before they are transplanted. They should be taken up in the spring, and planted out finally, in ground properly prepared for such small plants; for the less they are removed, so much the faster will they thrive; as they naturally grow with long strong stringy roots, that do not love to be disturbed; on which account, if places in the plantations were to be marked out, the mould made fine, a few seeds of the different sorts sown, and sticks set as guides to prevent their being hoed or dug up; plants that have been thus raised, without removing, will shoot stronger, and flower better, than any that have been brought from the seed bed or nursery. After they are come up, if there be too many in a place, the weakest may be drawn out, and only two or three of the strongest left, which will cause them to flower better and stronger.

GLEDITSIA.

Linnean Class and Order, *Polygamia Dioecia:* Hermaphrodite flowers and male flowers upon one plant, and female flowers upon a different plant. There are two Species: one of them a Stove plant; the other

Gledi′tsia *Triaca′nthus:* The Gleditsia, or Triple-thorned Acacia; *a deciduous tree*; native of Virginia and Pennsylvania.

The Gleditsia. Its growth is naturally upright, and its trunk is guarded by thorns of three or four inches in length, in a remarkable manner. These thorns have also others coming out of their sides at nearly right angles: Their colour is red. The branches are smooth, and of a white colour. These are likewise armed with red thorns, that are proportionally smaller: They are of several directions, and at the ends of the branches often stand single. The young shoots of the preceding summer are perfectly smooth, of a reddish , and retain their leaves often until the middle of

November. Although there is a peculiar oddity in the nature and position of the spines, yet the leaves constitute the greatest beauty of these trees: They are doubly pinnated, and of a delightful shining green. The pinnated leaves that form the duplication do not always stand opposite by pairs on the middle rib; the pinnæ of which they are composed are small and numerous; no less than ten or eleven pair belong to each of them; and as no less than four or five pair of small leaves are arranged along the middle rib, the whole compound leaf consists often of more than two hundred pinnæ of this fine green colour: They sit close, and spread open in fine weather; though during bad weather they will droop, and their upper surfaces nearly join, as if in a sleeping state. The flowers are produced from the sides of the young branches, in July: They are a greenish catkin, and make little show; though many are succeeded by pods, that have a wonderful effect; for these are exceedingly large, more than a foot, sometimes a foot and a half in length, and two inches in breadth, and of a nutbrown colour when ripe; so that the effect they occcasion, when hanging on the sides of the branches, may easily be guessed.

There is a *Variety* of this species, with fewer thorns, smaller leaves, and oval pods. It has nearly the resemblance of the other; though the thorns being not so frequent, and the pods being smaller, each containing only one seed, this sort loses that singular effect which the other produces by them.

The PROPAGATION of these trees is not very difficult. We receive the seeds from America in the spring, which keep well in the pods, and are for the most part good. They generally arrive in February; and, as soon as possible after, they should be sown in a well sheltered warm border of light sandy earth. If no border is to be found that is naturally so, it may be improved by applying drift sand, and making it fine. The seeds should be sown about half an inch deep: and they will for the most part come up the first spring. If the summer should prove dry, they must be constantly watered; and if shade could be afforded them in the heat of the day, they would make stronger plants by the autumn. A careful attention to this article is peculiarly requisite; for as the ends of the branches are often killed, if the young plant has not made some progress, it will be liable to be wholly destroyed by the winter's frost, without protection: And this renders the sowing the seeds in a warm border, under a hedge, in a well sheltered place, necessary; for there these shrubs will endure our winters, even when seedlings, and so will require no farther trouble; nay, though the tops should be nipped, they will shoot out again lower, and will soon overcome it. It will be proper to let them remain two years in the seed bed, before they are planted out in the nursery. The spring is the best time for the work. Their distances should be one foot by two; the rows should be dug between every winter; and being weeded in summer, here they may continue with no other particular care, until they are set out to remain. These trees are late in the spring before they exhibit their leaves, but keep shooting long in the autumn.

GLYCINE.

LINNEAN Class and Order, *Diadelphia Decandria:* Each flower contains ten males arising in two divisions, and one female. There are four fourteen SPECIES; five of which have been enured to the open air of this country.

1. GLYCI'NE *Frute'scens:* The CAROLINA KIDNEY BEAN; *a climber;* native of Carolina and Virginia.

2. GLYCI'NE *A'pios:* The ASH-LEAVED MILK VETCH; *a climber;* native of Virginia.

3. GLYCI'NE *Tomento'sa:* The CLIMBING REST-HARROW; *a climber;* native of Virginia.

4. GLYCI'NE *Como'sa:* The MARYLAND KIDNEY BEAN; *a climber;* natural to moist shady places in Virginia.

5. GLYCI'NE *Mono'ica:* The VIRGINIA GLYCINE; *a climber;* native of moist shady places in Virginia.

1. CAROLINA KIDNEY BEAN does not rise by the assistance of claspers, but by the twining branches,

which naturally twist round any adjacent tree; nay, if trees are ten feet or more distance from the root of the plant, its branches, being too weak to support themselves, will trail along the ground until they reach these trees, and then they will twine their branches with theirs, and arrive to a great height: Indeed, where trees are near at hand, and they begin by the first spring shoot to twist about them, they will twine up to them to the height of near twenty feet. This climber is possessed of noble large pinnated leaves, very much like those of liquorice. The folioles are about three pair in number, arranged on their common midrib, and they always end with an odd one. Their colour is for the most part of a lightish hoary cast, with a blueish tinge. The flowers are very large and ornamental: Their colour is that of a blueish purple, and their general characters indicate their structure. They are produced from the wings of the leaves, in July and August; and are succeeded by long pods, like Kidney Beans.

This fine climber is easily PROPAGATED, 1. By seeds, if there is a conveniency of procuring them from abroad; for they never ripen with us. In the spring, as soon as we receive them, they should be sown in fine beds of light sandy earth, half an inch deep. They will readily come up, and all summer must have frequent waterings; and if the beds be shaded in hot weather, it will be the better. In winter the beds should be hooped, and covered with mats in frosty weather: And in spring the strongest may be drawn out, which will thin the bed, and make way for the others, which should stand until the next spring. Plants thus drawn should be set in the nursery, at small distances, and in a year or two after they will be good plants for any place where they are wanted. 2 This plant is also easily encreased by layers; for if the young shoots of the preceding summer be laid in the ground in the autumn, by the autumn following they will have struck root; when the best-rooted and strongest layers may be planted out to stand where they are wanted, whilst the weaker, or those with hardly any root, may be set in the nursery, like the seedlings, to gain strength,

2. The ASH-LEAVED MILK VETCH will twine from six to twelve feet high, according to the nature of

the soil; for in a rich fat mould it will grow near double the length it will in a soil of an opposite nature. The stalks die to the ground every autumn: and in the spring new ones are issued forth from the roots, which are composed of many knobs, that encrease in number, the longer the plant is suffered to remain. The leaves somewhat resemble those of the Ash-tree, being pinnated almost in the same manner. The folioles, which consist of three pair besides the odd one, are of an oval lanceolate shape; and being arranged opposite along the midrib, and terminated with a single one, form a fine leaf. The flowers are produced from the sides of its twining stalks, in August. They grow in small spikes, are of a reddish colour, and being of the butterfly or pea-blossomed kind, make a pretty good show. These flowers are sometimes succeeded by pods, which never prefect their seeds with us.

3. **Climbing Restharrow** is but a low plant for a climber, seldom arising higher than five feet. The stalk dies to the ground every autumn; and the loss is repaired by a natural succession presented from the root every spring. The leaves are trifoliate, and very downy. Every one knows the beauty that arises from leaves of a hoary nature, amongst the variety of greens of different tinges. The flowers are of the pea-bloom kind, and are produced in short bunches, in June and July, from the sides of the stalks. They are of a yellow colour, and, though they are rather small in proportion, are very beautiful. They are succeeded by pods, in which two seeds only are contained, and which will be ripe with us in September.

4. The **Kidney Bean Plant of Maryland** has a slender, annual, twining stalk, which will arise to be three or four feet high. The leaves are trifoliate, and sit close to the stalks. They are hairy, and the folioles are of an oval lanceolate shape; and being of a good green, make the whole ornamental enough. But the greatest ornament this plant receives is from the flowers, which are also of the pea-bloom kind, and are of a lear blue. They are produced in June, from the sides e stalks, in fine recurved bunches; and these are d by pods, which will have ripe seeds in August er.

5. The **Virginian Glycine** will arise with its slender branches to a degree higher than the other. The stalks are hairy, and the leaves with which they are ornamented are trifoliate and naked. The flowers are produced from the sides of the stalks, in June and July. They grow in pendulent bunches, and are also of the butterfly kind. They are very beautiful, and each exhibits a variety of colours; for the wings and the keel are white, whilst the standard is of a pale violet colour. These flowers are succeeded by compressed half rounded pods, hanging by lengthened peduncles; and the seeds will often be ripe in September.

All these sorts are PROPAGATED by the seeds; and this may be in the places where they are to remain, or in warm well sheltered beds, or in pots, to be housed for the first winter, if it should prove severe. They will very readily come up; and if they are sown in the open ground, the beds should be hooped at the approach of winter, to be covered with mats, in case it should prove bad. It will be proper to plunge those sown in pots, immediately after, up to the rims in the natural mould; this will keep them cool and moist: At the approach of hard frosts, they may be removed into the greenhouse; and in spring may be turned out into the places where they are designed to remain. Those in the beds, also, should be transplanted to such places: Their after management will be only to part the roots about every three or four years; and by this method also they may be all encreased. The spring is the best time for parting the roots; and by this way they may be multiplied fast enough. As to the first sort, this method is chiefly practised for its propagation, as it does not ripen its seeds here, unless there is a conveniency of procuring them from abroad. The roots of this sort are composed of several knobs; and these being taken up and divided readily grow, and become good plants.

These perennials are all proper to be planted amongst shrubs in warm and well sheltered places; for they are rather of a tender nature, and are often destroyed by severe frosts. As the stalks are all annual, as soon as they decay at the approach of winter, they should be cut up close to the ground, and cleared of such plants will bring the plants up the first spring. After they make their appearance, they must be hardened by degrees to the open air. 2. This tree may likewise be propagated by layers. These must be the smaller shoots of the last year's wood. The operation must be performed by making a slit, as is practised for carnations; and the best time for the business is the autumn. 3. By cutting the root, also, this tree may be encreased. In order to this, bare away the earth from the top of the root; then with the knife cut off some parts of it, leaving them still in the ground, and only directing their ends upwards: Then cover the whole down lightly with mould. The parts that have been separated will shoot out from the ends, and come up as suckers all round the tree. If dry weather should happen, you will do well to water them all the summer; and in the autumn they may be removed to the place where they are designed to remain; which ought always to be in a light dry soil, in a well sheltered place.

HAMAMELIS.

Linnean Class and Order, *Tetrandria Digynia*: Each flower contains four males and two females: There is only one Species:

Hamame'lis *Virgi'nica:* The Dwarf Hazel; *a low deciduous shrub;* native of Virginia.

The Dwarf Hazel is a shrub of about four feet in growth, and will constitute a variety among other trees, though there is no great beauty in it, except what is afforded by the leaves. These are placed on the branches, which are numerous and slender, in an alternate manner, and much resemble those of our Common Hazel, that are known to all. The flowers make no show; but perhaps the time of their appearing, which happens in winter, in November or December, when they will be produced in clusters from the joints of the young shoots, may make the plant desirable to some persons. Nothing farther need be said to the gardener concerning this shrub, which Nature seems to have designed for the stricter eye of the botanist; so that we shall proceed to its culture.

It is **PROPAGATED**, 1. By seeds, which must be procured from America, for they do not ripen here. An easterly border, well defended from the north and westerly winds, is best for their reception; for these plants, when seedlings, are rather tender; when older, they are hardy enough. They will grow in almost any kind of good garden mould, made fine; and they should be covered about half an inch deep. They will not come up before the second, and sometimes the third spring. 2. This tree may also be **PROPAGATED** by layers; so that whoever has not the conveniency of procuring the seeds from abroad, having obtained a plant or two, may encrease them this way. The operation should be performed on the twigs of the preceeding summer's shoot: These should be slit at the joint, and a bit of chip, or something, put in to keep the slit open. If these stools stand in a moistish place, which these shrubs naturally love, and are layered in the autumn, they will have shot root by the autumn following; and may be then either planted out in the nursery, or where they are to remain.

HEDERA.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female: There are only two SPECIES:

1. HE'DERA *He'lix*: The COMMON IVY; a well known *evergreen climber;* native of England and most parts of Europe.

2. HE'DERA *Quinquefo'lia*: The DECIDUOUS IVY, or the VIRGINIAN CREEPER; *a deciduous climber;* native of Virginia and Canada.

1. The COMMON EVERGREEN IVY. Besides the

genuine species there are three *Varieties;* namely, the Yellow-berried Ivy; the Gold-striped Ivy; and the Silver-striped Ivy.

The *Common Ivy* is well known all over England, and how naturally it either trails on the ground, or rises with walls or trees, striking its roots all along the sides of the branches for its support. It chiefly delights in old houses or walls; and when it has taken possession of any outside of the outer buildings, will soon cover the whole. It will make surprising progress when it reaches old thatch; and will soon, if unmolested, climb above the chimney itself. Neither are old houses or walls what it chiefly likes to grow on; for it will strike its roots even into the bark of trees. But above all, it chiefly affects old rotten trees or dodderels; for these it will almost cover, and rear its head with a woody stem above the trunk, and will produce flowers and fruit in great plenty. There, as well as on the sides of old walls and buildings, it becomes a habitation for owls and other birds. The usefulness of Ivy, then, in gardening, is to overrun caves, grottos, old ruins, &c. to which purpose this plant is excellently adapted; and were it not for its commonness, it would be reckoned inferior to few evergreens; for the older gray stalks look well, whilst the younger branches, which are covered with a smooth bark of a fine green, are very beautiful. The leaves, also, are of a fine strong green, are large and bold, and make a variety among themselves; for some are composed of lobes, whilst others are large, and of an oval figure. The flowers are nothing extraordinary, unless it be for the figure in which they grow. This is strictly the *Corymbus;* and all flowers growing in such bunches are called by Botanists Corymbose Flowers. The fruit that succeeds them, however, is very beautiful; for being black, and growing in this round regular order, and also continuing on all winter, it makes the tree singular, and, were it not for its commonness, desirable. It is observable, if Ivy has no support, but is left to creep along the ground only, it seldom flowers; but having taken possession of rails, hedges, trees, or buildings, from these it sends out woody branches, which produce the flowers and fruit.

The *Yellow-berried Ivy* differs from the Common Ivy in that its berries are yellow. It grows common in the islands of the Archipelago; and is at present rare with us. This is the *Hedera Poetica* of old authors.

The *Gold-striped Ivy* is the Common Ivy with yellow blotched leaves; though it is observable, that this sort has very little inclination to trail along the ground, or up trees or buildings, as it naturally rises with woody branches, and forms itself into a bushy head: So that this sort may be planted amongst variegated trees, or evergreens, as a shrub. Let it be set where it will, it is very beautiful; for the leaves will be a mixture of yellow and green; and sometimes they will have the appearance of being all yellow, thereby causing a very singular and striking look at a distance.

The *Silver-striped Ivy* is a variety of our Common sort, though the branches are naturally more slender. The leaves also are smaller; and of all the sorts, this creeps the closest to walls or buildings, or is of strength sufficient to form its ligneous branches, when got to the top, to any head. "This plant (continues HANBURY, with whom it seems to be a very great favourite) is of all others to be planted against walls for ornament; for its leaves are very finely striped with streaks of silver, and the sets being first planted at small distances, will soon cover them all over, so as to have a delightful look. A more beautiful ornament to a wall cannot be conceived, than what belongs to a wall of Charles Morris, Esq. of Loddington. It consists of these plants, which having first taken properly to the ground, and afterwards to the mortar-joints, have so overspread the surface as to be a sight, of the kind, superior to any I ever beheld; and I am persuaded there are few people of taste, who had seen anything of this nature, but would be induced to have the like, even against their choicest walls. And here let it always be remembered, that whereas our Common Green Ivy is to hide and keep from view all old and unsightly walls, so the Silver-striped Ivy is to ornament all walls, even those of the finest surface."

2. The DECIDUOUS AMERICAN IVY is a real species of *Hedera*. It sheds its leaves in the autumn; and will spread itself over pales, walls, buildings, &c. in a very

little time. It puts forth roots at the joints, which fasten into mortar of all sorts; so that no plant is more proper than this to hide the unsightly surface of an old barn end, or any other building which cannot be concealed from the view by trees being planted at some distance; as in one year it will shoot often near twenty feet, and, let the building be ever so high, will soon be at the top of it. The bark on the shoots is smooth, and of a brown colour; and the buds in the spring, as they are beginning to open, will be of a fine red. The leaves are large and well-looking. Each is composed of five smaller, which are serrated at their edges. Their common footstalk is proportionably strong, and they die to a fine red in the autumn. It grows with great luxuriance in the atmosphere of the metropolis.

All the sorts are to be PROPAGATED by cuttings; for these being set any time in the winter, in almost any soil, will strike root by the autumn following; and if they are permitted to remain another year, they will then be strong plants, fit to be set out for good. The Common Ivy is also to be raised from seeds.

HIBISCUS.

LINNEAN Class and Order, *Monadelphia Polyandria:* Each flower contains numerous males and one female; the males being joined together at the base: There are thirty-seven SPECIES; one of which adds great beauty to our grounds and shruberies, in autumn.

HIBI'SCUS *Syri'acus:* The ALTHE'A FRU'TEX, or the SYRIAN MALLOW, or the SYRIAN HIBISCUS; *a deciduous shrub;* native of Syria.

The ALTHEA FRUTEX, or the SYRIAN HIBISCUS. Of this species there are several *Varieties:*

The *White Althea Frutex.*
Red-flowering Althea Frutex.
Yellow-flowering Althea Frutex.
Pale Purple-flowering Althea Frutex.
Deep Purple Althea Frutex.

all around, to break the keen edge of the black frosts, which otherwise would destroy many of them the first winter: After that, they will be hardy enough for our severest weather. They should stand in these seed beds two years, and all the while be weeded and watered in dry weather. The spring is the best time for planting them out in the nursery, where no more distance need be allowed them than one foot. 2. These plants may be propagated by layers; for which purpose the stools should be headed near the ground, to throw out some good strong shoots the following summer. These should be laid in the ground, the bark being broken, or cut at one or two of the joints, and they will have struck root by the autumn following, when they may be taken up and planted in the nursery, like the seedlings; and a second operation performed on the stools. 3. These plants may be raised also by cuttings; for by planting them in a shady border, many of them will grow; though this is not a certain method.

HIPPOPHÆ.

Linnean Class and Order, *Dioecia Tetrandria*: Male flowers containing four stamina, and female flowers containing one pistil, upon distinct plants: There are only two Species:

1. Hi'ppophæ *Rhamno'ides*: The European Sea Buckthorn; *a tall deciduous shrub;* native of the sea shores of this country and most parts of Europe.

2. Hi'ppophæ *Canade'nsis*: The American Sea Buckthorn; *a tall deciduous shrub;* native of Canada.

1. The European Sea Buckthorn will grow to the height of about twelve feet, and sends forth numerous branches in an irregular manner. Their colour is that of a dark brown; and on them a few strong and long sharp spines are found, nearly like those of the Common Buckthorn. This tree is chiefly admired for its singular appearance in winter; for the young shoots

of the preceding summer are then found thickly set on all sides with large, turgid, uneven, scaly buds, of a darker brown, or rather a chocolate colour, than the branches themselves: These give the tree such a particular look, that it catches the attention, and occasions it to be enquired after, as much as any shrub in the plantation. About the end of February these turgid buds will be much larger; and a little before their opening, upon striking the tree with a stick, a yellow dust, like brimstone, will fall from them. Though some think the beauty of this shrub to be diminished after the leaves are opened, yet these have their good effect; for they are of two colours: Their upper surface is of a dark green, their under hoary; they are long and narrow, entire, have no footstalks, nearly like those of the rosemary, though rather longer and broader; and they are placed alternately all around, without any footstalks, on the branches. They continue on the tree green and hoary late, sometimes until the beginning of December, and at length die away to a light brown. The flowers are of no consequence to any but Nature's strict observers. They are produced in July, by the sides of the young shoots; the male flowers appear in little clusters, but the females come out singly. They are succeeded by berries, which, in the autumn, when ripe, are either of a red or yellow colour, for there are both those sorts. The wood is of a brittle texture, and a bright brown colour.

2. CANADA SEA BUCKTHORN will grow to about the same height as the other species; nearly the same dark brown bark covers their branches; and, except the figure of their leaves, which are oval, this plant differs in few respects from the European Sea Buckthorn.

Both these sorts may be PROPAGATED, 1. By cuttings of the young shoots, planted in a shady border, in October; though the most certain method is by layers. If the trees to be encreased are of some years growth, the ground should be dug and made fine, as well as cleared of the roots of bad weeds, &c. all round. The main branches may be plashed, and the young twigs that form the head laid in the ground; taking off their ends with a knife, that they may only just peep. If this work be performed in the autumn, they will be

[illegible] the autumn following, when
[illegible] and either planted in the nur-
[illegible] to remain. 2. Both these sorts
[illegible] and throw out many suckers,
[illegible] stance from the plants; so that
by this method they propagate themselves.

HYDRANGEA.

LINNEAN Class and Order, *Decandria Digynia:* Each flower contains ten males and two females: There is only one SPECIES:

HYDRANGE'A *Arbore'scens:* The HYDRANGEA; *a deciduous shrub;* native of Virginia.

The HYDRANGEA seldom grows to more than a yard or four feet high, and affords as much pleasure to those who delight in fine flowers as it does to the botanist. It forms itself into no regular head; but the branches of which it is composed shoot chiefly from the root. These, when young, are four-cornered and green; when old, of a fine brown colour: They are very large for their height, as well as very full of pith. The leaves are a great ornament to these plants; being also very large, and having their upper surface of a fine green, and their under rather downy. Their figure is nearly shaped like a heart, but ends in an acute point; and their size will prove according to the nature of the soil they grow in. On a dry soil, they will often be no more than two inches long, and scarcely an inch and a half broad; but, in a moist rich soil, they will frequently grow to near four inches long, and two and three quarters broad in the widest part. They are serrated at their edges, and are placed on long foot-stalks, opposite to each other, on the branches. But the flowers constitute the greatest beauty of these plants; for they are produced in very large bunches, in August: Their colour is white, and the end of every branch will be ornamented with them. They have an agreeable odour, and make such a show all together as to distinguish themselves even at a considerable distance. With us, however, they are seldom succeeded by any seeds.

The PROPAGATION of this plant is more easy than to keep it within bounds: for the roots creep to a considerable distance, and send up stalks which produce flowers; so that these being taken off, will be proper plants for any place. It likes a moist soil.

HYPERICUM.

LINNEAN Class and Order, *Polyadelphia Polyandria*: Each flower contains many males and about three females; the males being joined at the base in many sets: There are forty SPECIES; two of which are proper for ornamental shruberies.

1. HYPE'RICUM *Hirci'num:* The SHRUBBY ST. JOHN'S WORT, or the STINKING or GOAT-SCENTED ST. JOHN'S WORT; *a deciduous shrub;* grows naturally by the sides cf rivers in Sicily, Calabria, and Crete.

2. HYPE'RICUM *Canarie'nse:* The CANARY ST. JOHN'S WORT; *a deciduous shrub;* native of the Canaries.

The SHRUBBY ST. JOHN'S WORT. Of this there are several *Varieties*. The Common is a beautiful shrub, near four feet in height. The branches are smooth, of a light brown, and come out opposite by pairs from the sides of the strongest stalks; and these also send forth others, which alternately point out different directions. The leaves are of an oblong oval figure, grow opposite by pairs, and sit very close to the stalks. These being bruised, emit a very strong disagreeable scent. The flowers are yellow, and make a good show in June and July; for they will be produced in such clusters, at the ends of the young shoots, that the shrub will appear covered with them. They are succeeded by oval black-coloured capsules, containing ripe seeds, in the autumn.

There is a *Variety* of this species, which will grow to be eight feet high: The stalks are strong, the leaves broad, and the flowers large; and being produced in great plenty, causes it to be a valuable shrub for the plantation. There is another Variety with variegated leaves, which is admired by those who are fond of such kinds of plants. There is also a Variety dispossessed of the disagreeable smell, which causes it to be preferred by many on that account.

2. The CANARY ST. JOHN'S WORT is a shrub of about six or seven feet high: The branches divide by pairs, and the leaves, which are of an oblong figure, grow opposite by pairs, without any footstalks. The flowers come out in clusters from the ends of the branches: They are of a bright yellow, have numerous stamina, which are shorter than the petals, and three styles. They appear in July and August, and are succeeded by oval roundish capsules, containing the seeds.

No art need be used in PROPAGATING these shrubs, for, 1. Having obtained a plant or two of each, they will afford encrease enough by suckers. Having stood about three years, the whole of each plant should be taken up, and the suckers and slips with roots that this may be divided into, may reasonably be supposed to be twenty in number. The strongest of these may be planted where they are to remain, while the weaker may be set out in the nursery to gain strength. 2. These shrubs may also be propagated by seeds, which ripen well with us, and will come up with common care; nay, they will often shed their seeds, which will come up without sowing, especially the last sort.

JASMINUM.

LINNEAN Class and Order, *Dyandria Monogynia*: Each flower contains two males and one female: There are six SPECIES; three of which are hardy enough for our purpose.

1. JA'SMINUM *Officina'le:* The COMMON WHITE JASMINE; *a deciduous shrub or climber;* native of India.

2. JA'SMINUM *Fru'ticans:* The COMMON YELLOW JASMINE; *a deciduous shrub or climber;* native of the South of Europe, and of the East.

3. JA'SMINUM *Hu'mile:* The ITALIAN JASMINE; *a deciduous shrub or climber;* native of Italy.

1. The COMMON WHITE JASMINES have usually been planted against walls, &c. for the branches being slender, weak, and pithy, by such assistance they have arrived to a good height; though this shrub is not the most eligible for that purpose, as its branches, which are numerous, are covered with a brown, dirty-looking bark, and afford shelter for snails, spiders, and other insects, which in winter, when the leaves are fallen, will give them an unsightly look; and if they are clipped and kept up to the wall, as the flowers are produced from the ends and wings of the shoots, these must of course be sheared off; so that little bloom will be found, except what is at the top of the tree. It is not meant however, to dissuade those people who are fond of it from planting it against walls: It naturally requires support, though attended with those defects. It may, nevertheless, be planted amongst shrubs in the shrubery, to appear to great advantage. It should keep company with the lower kinds of shrubs; and whenever the branches grow too high to sustain themselves without nodding, and discover their rusty stems, these should be taken off from the bottom. There will always be a succession of young wood; and these young shoots, which are covered with a smooth bark, of a delightful green colour, also exhibit the leaves and bloom. The leaves are pinnated, and very beautiful: They grow opposite by pairs, and the folioles are usually three pair in number, besides the odd one with which each leaf is terminated. They are all of a dark strong green colour, are pointed, and the end one is generally the largest, and has its point drawn out to a greater length. The flowers are produced from the ends and joints of the branches, during most of the summer months: They are white, and very fragrant; but are succeeded by no fruit in England.

There is a *Variety* of this sort with yellow, and another with white striped leaves.

2. The YELLOW JASMINE is often planted against walls, pales, &c. as the branches are weak and slender; and it will grow to be ten or twelve feet high, if thus supported. It may, however, be planted in shrubery quarters, in the same manner as the other. The young shoots are of a fine strong green colour, angular, and a little hairy. The leaves are trifoliate, though sometimes they grow singly: They are placed alternately on the branches, are of a thick consistence, smooth, and of a fine deep green colour. These leaves, in well sheltered places, remain until the spring before they fall off; so that this plant may not improperly be ranked among evergreens, especially as the young shoots are always of a strong green. The flowers are yellow, and do not possess the fragrance of the preceding species: They are produced in June, and the blow is soon over; but they are succeeded by berries, which, when ripe, are black. These have occasioned this sort to be called by some persons the Berry-bearing Jasmine.

3. The ITALIAN JASMINE is, of all the sorts, best adapted to a shrubery, because it loses part of its beauty if nailed to a wall. It is naturally of lower growth, and the branches are stronger, fewer in number, able to support themselves in an upright position, and are angular. The bark is smooth, and of a fine deep green colour. The leaves grow alternately: They are chiefly trifoliate, though some pinnated ones are found upon this shrub. The folioles are smooth, and of a fine strong green: They are much broader than the preceding sorts, and often continue till spring before they drop off; so that this shrub, on account of the beautiful green colour of the young shoots, might have a place among evergreens. The flowers are yellow, and much larger than those of the other sorts: They are produced in July, and are sometimes succeeded by berries; but these seldom if ever come to perfection. This species is very hardy, and has grown in the most exposed places, resisting the severest frosts for many years.

Little need be said concerning the PROPAGATION of these plants; for they will all grow by layers or cuttings; so that if either way be pursued in the winter, you will have plenty of plants by the autumn following. The cuttings, however, must have a moist good soil, and should be shaded and watered, as the hot weather comes on, the beginning of summer. The Common Yellow Jasmine may be propagated by the seeds; but it naturally sends forth such plenty of suckers as to render it needless to take any other method for its encrease; for these being taken off, will be good plants; nay, if it is planted in borders, they must be annually taken for use, or thrown away, or they will overspread every thing that grows near them. The Yellow and White striped-leaved Jasmines are propagated by grafting, budding, or inarching into stocks of the Common White: They are rather tender, especially the White, therefore must have a warm situation. The Yellow-striped is the most common and least beautiful, and may be encreased by layers and cuttings, like the plain sort.

ILEX.

LINNEAN Class and Order, *Tetrandria Tetragynia*: Each flower contains four males and four females: There are three SPECIES; one of Europe, one of Asia, and one of America: the last has been introduced into our gardens and shruberies, making with our own Holly two species.

1. I'LEX *Aquifólium*: The COMMON HOLLY, or the EUROPEAN HOLLY; a well known *evergreen tree or shrub*; native of most parts of Europe, particularly of England.

2. I'LEX *Cassi'ne*: The AMERICAN HOLLY, or the DOHOON HOLLY; *an evergreen tree or shrub*; native of Carolina.

1. The EUROPEAN or COMMON HOLLY will grow to thirty or forty feet high, with a proportionable stem. In its natural soil and situation, namely, a high chalky, marly, or limestone loam, the stem frequently

shoots up naked and silvery, six or eight feet high, supporting a close, snug, elliptical head: This may be called its tree state. But the Holly, almost as frequently, puts on a very different appearance; feathering from the ground and rising with an irregular, loose, elegant outline; forming one of the most *Ornamental* evergreens which Nature has furnished us with. What renders it in this point of view peculiarly valuable,—it is not only highly ornamental in singlets or groups standing in the open air, but will flourish with great beauty under the shade and drip of the more lofty deciduous tribes. Besides, the blushing fruit of the Holly renders it most ornamental, at a time when the face of Nature is in a manner divested of every other ornament: In this light it is superior to the Box; and, indeed, taken all in all, the Holly is undoubtedly entitled to take rank amongst the first class of Ornamentals. In respect of *Utility*, the Holly gives place to the Box; except for the purpose of Hedges, and for this purpose it stands unrivalled;—but of this the reader will find more under the article HEDGES. Its wood, however, is in good esteem among the inlayers and turners; it is the *whitest* of all woods; its colour approaching towards that of Ivory.

The PROPAGATION of the Holly is principally from seeds. EVELYN tells us, that young seedlings, collected from the woods, and planted in a nursery, in a few years will make tolerable plants. MILLER says, the seeds "never come up the first year; but lie in the ground as the Haws do: therefore the berries should be buried in the ground one year, and then taken up and sown at Michaelmas, upon a bed exposed only to the morning sun; the following spring the plants will appear."—"In this seed bed, he says, the plants may remain two years; and then should be transplanted in the autumn, into beds at about six inches asunder, where they may stand two years longer, during which time they must be constantly kept clean from weeds; and if the plants have thriven well, they will be strong enough to transplant where they are designed to remain; for when they are transplanted at that age, there will be less danger of their failing, and they will grow to a larger size than those which are removed when they are much larger."—He also tells us, "the best time for removing Hollies is in autumn, especially in dry land; but where the soil is cold and moist, they may be transplanted with great safety in the spring; if the plants are not too old, or have not stood long unremoved; for if they have, it is great odds of their growing when removed." HANBURY differs with MILLER in regard to sowing: he thinks the best way is to sow them as soon as they are ripe, and then, he says, "they will undoubtedly come up the spring twelvemonth following."—"However, he adds, if the seeds have been buried, let them be taken up in October; and having some fine light soil for the seminary, let them be sown half an inch deep, and carefully covered from the mice." He recommends, when the seedlings are two years old, that "in the spring they should be taken out of the beds and planted in the nursery in rows, a foot asunder, and two feet distance between the rows. Here they may stand until they are of a sufficient size to be finally planted out." He follows MILLER as to the time of transplanting; recommending autumn if the land be naturally dry: but if of a moist nature, he says, "the planter need not be very anxious about the time of the winter in which he makes his plantations of Hollies." It is somewhat extraordinary that men practical as MILLER and HANBURY undoubtedly were, should not have been acquainted with the proper time of removing so prevalent and so useful a plant as the Holly: and it is still more remarkable, that the professional nurserymen of the present day should, in general, be involved in the same darkness. Spring is the very worst time for performing this business; winter and autumn may be sowewhat more eligible; but SUMMER is of all others the most proper season for transplanting the Holly. At this time of the year, if the plants be young and well rooted, it matters not much how dry the soil is; for they will, notwithstanding, succeed with great certainty. MILLER nevertheless is right in saying that large Hollies which have not lately been moved are difficult to transplant; more especially such as have stood in a thicket, or under the shade of other trees. If, however, even these be taken up with good roots, together with a large quantity of native mould adhering to them; their heads lessened by pruning them in the conoidic manner, and be planted during the summer months in a well tempered paste, agreeably to the directions given under the Article TRANSPLANTING, success, though it cannot be insured, may with great probability be expected. Thus far the Common Holly;—which has been already treated of under the Article HEDGES.

But besides the genuine species, there are of the European Holly almost endless *Varieties:* MILLER mentions some eight or ten; and HANBURY enumerates upwards of forty; Five of them are sufficiently distinct to merit separate descriptions; the rest, distinguished chiefly by the variegation or mottled appearance of their respective leaves, would only form a long list of uncouth names, wholly, uninteresting upon paper, how elegant soever they themselves may appear in a group of Evergreens.

The Smooth-leaved Holly.
The Green-leaved Yellow-berried Holly.
The Box-leaved Holly.
The Hedge-Hog Holly.
The Saw-leaved Holly.

The *Smooth-leaved Holly* resembles in general appearance the Common sort. Of the two it seems to be the strongest shooter, and bids fair for the largest growing tree. The leaves are nearly oval, and most of them are entirely free from prickles, only they end in acute points. This sort is commonly called the Carolina, Smooth-leaved Holly: But it is a native of England, and is found growing amongst the others in many parts.

The *Green-leaved Yellow-berried Holly* differs in no respect from the Common Holly, only the berries are yellow; and as this tree produces berries in plenty, which are thought by most people to be uncommon and curious, this sort, on their account, is deserving of a place, either in small or large gardens, in shrubery-quarters or plantations of any kind.

The *Box-leaved Holly* has but little claim to be so called; for though some of the leaves be small, pretty free from prickles, and nearly oval, yet there will be so many nearly as prickly as the Common Holly as to merit no claim to that appellation. The leaves, shoot strongly; and when the operation is to be performed by grafting, these will be proper stocks for the purpose by the spring following. The first week in March is a good time for the work. Whip-grafting is the method to be practised; and it must be performed on the young wood, namely, on that of the preceeding summer's shoot. The cions being cut true and even, and well jointed to the stock, many of them will grow; and this is a very good method of encreasing these trees. They may also be multiplied at pleasure by inoculation. This operation is best performed about ten days after Midsummer, in cloudy weather; and for want of this, evening should be the time: and if much work is to be done, morning too may be added; nay, it may be practised all day in the hottest seasons, with tolerable success; but this is never so eligible, unless when the multiplicity of work obliges us to loose no time. The young wood of the preceeeding summer's shoot is proper for the purpose; and the operation is to be performed in the usual way. In the autumn the bands should be loosed, and in the spring the stocks dressed up, and headed two or three inches above the bud; the buds will be as early in shooting out as any of the shoots of the growing trees, and will soon become good plants for any place.

2. The DOHOON HOLLY is an American plant, particularly of Carolina, where it grows to be nearly as large a tree as our Holly does with us. It naturally rises with an upright stem, which is covered with a brown bark, and this affords plenty of younger branches, whose bark is green and very smooth. The leaves are pretty large, and of an oval lanceolated figure; they are of a thickish composition, of a fine green, and grow alternately on the branches. Their edges are serrated, though altogether different from the Common Sawed Holly, their serratures towards the upper end of the leaf being small and sharp. The leaf, on the whole, is of a fine composition, and grows on short footstalks on the branches. The flowers are small and white, and a little resemble those of the Common Holly. They are produced from the sides of the branches, in short thick clusters; and are in their native climate succeeded by red berries, equalling those of our Common sort in beauty.

The Dohoon Holly may be PROPAGATED by seeds, which we receive from the countries where it grows naturally; for the berries will not ripen, and indeed are very seldom produced, in England. The best way is to sow them in pots filled with light sandy earth, as soon as they arrive, and then plunge them up to the rims in the natural mould, where they may remain until the spring following; for they rarely ever come up the first summer. The spring after that the plants will appear; and if they have then the assistance of a hotbed, it will greatly help them forward. They must be used to the open air soon. The pots must be taken up and plunged in a shady place, and in October they should be removed into the greenhouse for the winter. In the spring the plants in the pots may be thinned by drawing out the strongest; and those thus drawn should be planted each in a separate pot, and must be set forward with a hotbed as before. The others, also, may be taken out at two or three years growth, planted in pots, and assisted in the same manner. Every October they should be removed into the greenhouse, set out in the spring, and treated as greenhouse plants, until they are at least five or six years old; for before then they will be hardly woody enough to venture the planting them out to stand. The latter end of March, when the danger of bad weather is chiefly over, is the best time for the purpose; and if they have a dry soil and a warm situation, they will bear the cold of our common winters; though if a very severe winter should happen before they are got very strong and woody, it is more than probable that all of them will be destroyed.

ITEA.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There is only one SPECIES:

ITE'A *Virgi'nica*: The ITEA; *a deciduous shrub;* e of Virgina.

The ITEA is a plant of about five or six feet in height. The branches are numerous, and are produced irregularly all around. The leaves with which they are ornamented are of a fine green colour, gentle serratures poſsess their edges, their figure is that of a spear, and they grow alternately on the twigs. But the flowers constitute the greatest beauty of these shrubs; for they are produced in July, at the ends of the young shoots, in large erect spikes: Their colour is white; and as most of the branches will be terminated by them, the tree itself appears at a distance like one large bunch of white flowers: So delightful is the variety which Nature furnishes for our contemplation and pleasure.

The PROPAGATION of this beautiful shrub is not very easy; though it may be propagated by seeds and layers. 1. We receive the seeds from abroad. They should be sown in pots or boxes of fine loamy earth, mixed with drift or sea sand; and these should be plunged up to the brim in the moistest part of the garden, where they may remain till the spring after; for the seeds seldom come up the first year. In March, therefore, the pots should be taken up, and plunged into a hotbed, which will promote the growth of the seeds, and make them become stronger by the autumn. After the heat of the bed is over, they may be put in the same moist places again. The plants ought to be constantly weeded and watered; and in the autumn should be removed into the greenhouse, or placed under a hotbed frame, to be protected in severe weather. This care should be continued through the next winter also. In the spring, a damp day being made choice of, and a moist part of the nursery being well prepared, they should be taken out of the pots or boxes, and planted at about a foot asunder, which will be distance enough for their standing two or three years, when they will be of a sufficient size to be finally planted out. 2. These trees are also propagated by layers; for which purpose, some of them should be planted for stools in a moist rich soil. The young shoots of the preceding summer should be laid in the ground in the autumn; and in order to make them strike root, a little wire should be twisted pretty close round the bud, where the root is desired to be: This wire impeding the motion of the sap the succeeding summer, will occasion them to swell in those parts, and strike root. There are other methods by which the operation may be performed; but this has been found the most expeditious and surest.

JU'GLANS.

Linnean Class and Order, *Monoecia Polyandria*: Male flowers containing many stamina, and female flowers containing two pistils, upon the same plant; the males being collected in oblong catkins, the females sitting in clusters close to the branches. There are five Species; four of which are sufficiently hardy for this climate.

1 Ju'glans *Re'gia:* The Common Walnut; *a deciduous tree;* whose native country is uncertain.

2. Ju'glans *Ni'gra:* The Black Virginia Walnut; *a deciduous tree*; native of Virginia, Carolina, and Maryland.

3. Ju'glans *Al'ba:* The Hickery or White Virginia Walnut; *a low deciduous tree;* native of Virginia.

4. Ju'glans *Cine'rea:* The Pennsylvania Walnut; *a low deciduous tree;* native of Pennsylvania and other parts of North America.

1. The Walnut Tree. This as a fruit tree is universally known. We sometimes see it rise to a considerable height, and grow to great size; in general, however, it does not rise higher than forty feet; spreading out into a globular inelegant head; this added to the late season at which it puts forth its leaves, and the stiff uncouth appearance it takes after their fall, renders it of low value as an *Ornamental;* unless indeed its general appearance be heightened, by the imagination, with the idea of *Utility*. In this point of view, whether we consider its fruit, or the timber it produces, the Walnut ranks high, and is no doubt an object of notice to the planter. We are far, however, from being such

enthusiasts to the Walnut as **Evelyn** was: indeed its uses as a timber are greatly lessened since his day; Mahogany has superseded it in the more elegant kinds of furniture; and the Beech, being raised at less expence, and, from the cleanness of its texture, being worked with less trouble, has been found more eligible for the commoner sorts; chairs more especially. Nevertheless, the Walnut is still a useful wood: it takes a fine polish, and is in good esteem among the cabinet makers, turners, and gunsmiths. Were the importation of Mahogany to be obstructed, the Walnut it is probable would become a very valuable wood.

The method of **propagating** the Walnut is from seeds. **Evelyn** recommends the Black Virginia sort for timber; and says the nuts should be kept in the husks, or shucks, until March; when they should be planted in the husks; for, he says, "the extreme bitterness thereof is most exitial and deadly to the worm; or it were good to strew some furzes, broken or chopt small, under the ground among them, to preserve them from mice and rats when their shells begin to wax tender." He recommends their being planted in the place where they are to abide; the Walnut being very impatient of transplanting. If, however, it be necessary to remove the plants, he cautions us not to touch the head with the knife; nor even the tap-root, except when very young. Speaking of experienced husbandmen, he says, "what they hint of putting a tile shard under the nut, when first set, to divaricate, and spread the roots (which are otherwise apt to penetrate very deep), I like well enough." And from the same source he was informed, "that if they be transplanted as big as one's middle, it may be done safer than when young:" he adds, however, "I do only report it." **Miller** also recommends the Black Virginia sort for timber, which he says "is much more inclinable to grow upright than the Common sort; and the wood being generally of a more beautiful grain, renders it preferable to that, and better worth cultivating." "I have seen some of this wood," continues he, "which hath been beautifully veined with black and white, which when polished has appeared at a distance like veined marble." The nuts, he says, should be kept in the husks till

February, the proper time of sowing. If the trees be intended for timber, the nuts should be planted where they are to remain; but if for fruit, in a seed bed; because transplantation checks their upward growth, and renders them more fruitful. For timber, "they should be planted in lines at a distance you intend them to remain; but in the rows they may be placed pretty close, for fear the nuts should miscarry; and the young trees where they are too thick may be removed, after they have grown two or three years, leaving the remainder at the distance they are to stand." He also cautions against too free a use of the pruning knife, either to the roots or the branches; but when there is a necessity, he says, of cutting any of their branches, "it should be done early in September." He adds, "The best season for transplanting these trees is as soon as the leaves begin to decay, at which time, if they are carefully taken up, and their branches preserved entire, there will be little danger of their succeeding, although they are eight or ten years old; though these trees will not grow so large or continue so long as those which are removed young." HANBURY likewise follows EVELYN in recommending the Black Virginia Walnut in preference to the Common sort for timber. His farther directions concerning the choice of the seed and the method of propagation are as follow: "If the fruit of these trees are greatly coveted, the utmost care should be taken to gather the nuts from those trees which produce the best sorts; and although the Varieties of Walnuts are only seminal variations, yet there is the greater chance of having a succession of good nuts, if they are gathered from trees that produce good fruit. This maxim holds good in animals: The finest breed would degenerate, if attention was not paid to the sorts for breeding; and the like care must be extended throughout the whole system of planting, whether for fruit or timber. If for timber, we should be solicitous to gather the seeds from the healthiest, the most luxuriant and thriving young trees: If for fruit, from those which produce the richest and best kinds. Having marked the trees that produce the finest nuts, either for thinness of shell or goodness of taste, when they have begun to fall they will be ripe enough for gathering.

But as collecting them by the hand would be tedious, they may be beat down by long poles prepared for that purpose. Having procured the quantity wanted, let them be preserved, with their husks on, in sand till the beginning of February, which is the time for planting them. This is to be done in the following manner: Let drills be made across the seminary, at one foot asunder, and about two inches and a half deep, and let the nuts be put in these at the distance of about one foot. In the spring the young plants will come up; and here they should continue for two years, being constantly kept clear of weeds; when they will be of a proper size to plant out in the nursery. The ground should be prepared, as has been always directed, by double digging; and the trees being taken out of the seminary, and having their tap-roots shortened, should be planted therein, in rows two feet and a half asunder, and the plants at a foot and a half distance. Here they may remain, with the same culture as has been all along directed for the management of timber trees, till they are of a proper size for planting out for good. If they are designed for standards to be planted in fields, &c. before they are taken out of the nursery they should be above the reach of cattle, which may otherwise wantonly break their leading shoots, though they do not care to eat them on account of their extraordinary bitterness. They ought likewise to be removed with the greatest caution, and the knife should be very sparingly applied to the roots. They must also be planted as soon as possible after taking up; and this work should be always done soon after the fall of the leaf."

Evelyn tells us, that the Walnut Tree may be propagated "by a branch slipped off with some of the old wood, and set in February;" and in another place, "it is certain they will receive their own cions being grafted, and that it does improve their fruit."

It is agreed on all hands, that the Walnut requires a dry, sound, good soil, and will make but little progress, as a timber tree, in a cold barren situation.

2. The Black Virginia Walnut. This is the sort recommended for timber, and will grow to a large tree. The young shoots are smooth, and of a greenish

brown. The leaves are produced irregularly: They are large and finely pinnated, being composed of about eight, ten, twelve, and sometimes fourteen pair of spear-shaped, sharp-pointed folioles, which are terminated by an odd one, sawed at the edges, and the bottom pair are always the least. The flowers give pleasure only to the curious botanist. They blow early in the spring; and the females are succeeded by nuts of different sizes and shapes. The nuts of the Common sort have a very thick shell, inclosing a sweet kernel. They are furrowed, and of a rounder figure than those of the Common Walnut.

There are many *Varieties* of this species, and nuts of different sizes, like those of the Common Walnut, will always be the effect of seed: Some will be small and round; others oblong, large, and deeply furrowed. You must expect also to find a Variety in the leaves; some will have no scent, others will be finely perfumed. Hence the names, *Common Virginian Walnut*, *Aromatic Walnut*, *Deeply-furrowed-fruited. Walnut*, &c. have been used to express the different Varieties of this species.

3. The WHITE VIRGINIAN WALNUT, called the Hickery Nut, is a tree of lower stature, seldom arising more than thirty or thirty-five feet high; though the sort called the Shag-Bark is the strongest shooter. The young shoots of all are smooth. The leaves are also pinnated, though some of them are small, the number of folioles being from two or three pair to six or seven, besides the odd one with which they are terminated. The folioles are of a pleasant green colour, narrowest at their base, and serrated at their edges. The flowers are no ornament; and the nuts are small, hard, and of a white colour.

The *Varieties* of this species go by the various names of *Common Hickery Nut*, *Small-fruited Hickery Nut*, *Shag-Bark Hickery Nut*, *&c.*

4. PENNSYLVANIA WALNUT. This species grows to about the height of the former. The leaves are very long, being composed of about eleven pair of folioles, besides the odd one with which they are terminated. The flowers are yellowish, come out at the usual time with the others, and are succeeded for the most part by

small, roundish, hard-shelled fruit; though the nuts will be of different sizes in the different Varieties.

The method of PROPAGATING these trees is from the nuts, which we receive from America, where they grow naturally. These must be sown as soon as they arrive, in the manner directed for raising the Common Walnut. Their after management must also be the same.

JUNIPERUS.

LINNEAN Class and Order, *Dioecia Monadelphia:* Male flowers containing three stamina, and female flowers containing three pistils, situated on distinct plants. There are ten SPECIES; nine of them as follow.

1. JUNI'PERUS *Commu'nis:* The COMMON JUNIPER; *an evergreen shrub;* native of England and Scotland, and of many of the northern parts of Europe.

2. JUNI'PERUS *Oxyce'drus:* The SPANISH JUNIPER; *an evergreen shrub or tree;* native of Spain and South of France.

3. JUNI'PERUS *Virginia'na:* The VIRGINIA CEDAR, or the RED CEDAR; *an evergreen tree or shrub;* native of Virginia and Carolina.

4. JUNI'PERUS *Bermudia'na:* The BERMUDIAN CEDAR; *an evergreen tree or shrub;* native of Bermudas and America.

5. JUNI'PERUS *Barbade'nsis:* The JAMAICA CEDAR; *an evergreen tree or shrub:* native of Jamaica and other West India Islands.

6. JUNI'PERUS *Thuri'fera:* The SPANISH CEDAR; *an evergreen tree or shrub;* native of Spain.

7. JUNI'PERUS *Ly'cia:* The LYCIAN CEDAR; *an evergreen tree or shrub;* native of Spain, Italy, and France.

8. JUNI'PERUS *Phœni'cia:* The PHENICIAN CEDAR; *an evergreen shrub or tree;* native of Portugal, South of France, and the East.

9. JUNI'PERUS *Sabi'na:* The SAVIN; *a low evergreen shrub;* native of Italy, Siberia, Mounts Olympus and Ararat, and of Lusitania.

1. The COMMON JUNIPER. This species is divided into two *Varieties.*

The English Juniper.

The Swedish Juniper.

The *English Juniper* grows common upon the chalky hills about Banstead and Leatherhead in Surry, where it appears in a low weak state, as if cropped and kept down by the browsing of sheep, seldom rising higher than two or three feet; but when planted in a good soil, it will grow to the height of fifteen or sixteen feet: and will produce numerous branches from the bottom to the top, forming a large well looking bushy plant. These branches are tough, and covered with a smooth bark of a reddish colour, with a gentle tinge of purple. The leaves are narrow, and sharp pointed: They grow by threes on the branches; their upper surface has a grayish streak down the middle, but their under is of a fine green colour, and they garnish the shrub in great plenty. This tree flowers in April and May. The flowers are small, of a yellowish colour, and make no figure. They are succedeed by the berries, which are of a kind of a blueish purple when ripe, which will not be before the autumn twelvemonth following.

The *Swedish Juniper* has a natural tendency to grow to a greater height, and consequently has more the appearance of a tree than the former sort; sixteen or eighteen feet, however, is the highest it commonly grows to; and the plants raised from its seeds have, for the most part, a tendency to grow higher, and become more woody and ramose. The leaves, flowers, and fruit grow in the same manner, and are of the same nature, which shews it to be a Variety only. Old Botanists mention it as a distinct species: CASPAR BAUHINE asserts this, and calls one the Shrubby Juniper, and the other Tree Juniper; and he also mentions another sort, which he calls the Lesser Mountain Juniper, with a broader leaf and a larger fruit. This is still a Variety of the Common Juniper. The leaves, flowers, and fruit, however, are much the same; though there may be some difference in the size of their growth. From what has been said, the gardener will know, when he meets with them by those different names, where to plant them in suitable situations. It is observable of both these sorts, that in the beginning or middle of May, when they will be in full blow, the farina of the male flowers is discharged in such plenty, that upon striking the shrub with a stick, it will rise up in a still air, like a column of white smoke, and like that will be wafted with the gentlest wind until it is lost or out of sight.

2. SPANISH JUNIPER will grow to be rather a higher tree than the Swedish, in some soils. It will be feathered from the bottom to the top, if left untouched from the first planting, or if not crowded with other trees. The leaves are awl-shaped, and finely spread open. They are very short, sharp-pointed, and give the tree a fine look. The flowers are succeeded by large reddish berries, which are very beautiful when ripe.

3. VIRGINIA CEDAR. This tree is held out by EVELYN and HANBURY as being proper to be planted as a forest or timber tree. It grows to near forty feet high, the branches forming a beautiful cone, and, if left unpruned, the tree will be feathered to the very base; consequently it is highly *ornamental*. And HANBURY says, it " is valuable for many excellent and rare *uses*: It will, he says, continue sound and uncorrupt for many ages, being possessed of a bitter resin, which prevents the worms from attacking it. The wood may be converted into utensils of most sorts, as well as applied to great part of the uses to which the cypress is adapted. It is remarkable, however, for being of a very brittle nature, and is therefore not proper to be introduced into buildings where any great weight is to be lodged. Nevertheless, in Virginia and Carolina, where they abound, these trees are used in structures of all kinds, with this precaution; and the inhabitants prefer the timber to most other wood for wainscoting their rooms, and building of vessels."

4. BERMUDIAN CEDAR. In the island from which this tree takes its name, it grows to a timber size; but in this country it is a very tender plant, and requires not only a dry warm soil, but open mild winters, to

make it continue through them; so that when a person is desirous of having an extensive collection, then and then only is this sort to be sought after; for, when planted abroad, even in the warmest quarters, the plants require sheds to preserve them from the winter's frosts. It is the wood of the Bermudian Cedar of which pencils are made; also drawers of cabinets; and formerly wainscoting was made of this wood. In the island of Bermudas (which is in a manner covered with this tree), as well as upon the Continent of America, ships are built of it; its scent is peculiarly aromatic; but though agreeable to most people, it is offensive to some; and this may be one reason why less of this wood has of late years been imported into this country than was formerly.

5. **Jamaica Cedar.** This, in Jamaica, is a very large timber tree: but in our climate it is still more delicate than the Cedar of Bermudas; both of which ought to be considered as greenhouse rather than as shrubery plants.

6. **Spanish Cedar** grows plentifully in the country by whose name it is distinguished: it is a handsome, regular growing tree, rising in a conical form, if the branches are untouched, to the height of thirty or more feet. The leaves are imbricated, and lie over each other four ways; they are acute, and of a fine green colour: From these properties only, an idea of a fine tree may be had. The flowers are insignificant to a common observer; but they are succeeded by berries which make a good show when ripe; for they are very large, and of a fine black colour, and adorn the young branches in great plenty.

7. **Lycian Cedar,** also common in Spain, will rise to the height of about twenty-five feet; the branches have naturally an upright position, and their bark is of a reddish hue. The leaves are everywhere imbricated, and each is obtuse and of an oval figure. They resemble those of the Cypress, and are very beautiful. The flowers are succeeded by large oval berries, of a brown colour, and will be produced in plenty from the sides of the younger branches all over the tree.

8. **Phenician Cedar** seldom grows higher than twenty feet, and is a beautiful upright sort, forming a

kind of pyramid, if untouched, from the bottom. It has both ternate and imbricated leaves; the under ones grow by threes, and spread open; and the upper ones are obtuse, and lie over each other like the Cypress. The flowers are produced from the ends of the branches; and the fruit that succeeds them is rather small, and of a yellow colour. It is commonly called the Phenician Cedar, though it is found growing naturally in most of the southern parts of Europe.

9. SAVIN. Of this species there are three sorts:

Spreading Savin,
Upright Savin, and
Striped Savin.

Spreading Savin is a low spreading shrub; the branches have a natural tendency to grow horizontally, or nearly so; so that it must be ranked amongst the lowest growing shrubs; insomuch that unless it is planted against a wall, or supported in an upright position, we seldom have it higher than two feet. When it is to be planted and left to Nature, room must be first allowed for its spreading; for it will occupy a circle of more than two or three yards diameter, and will choke any other less powerful shrub that is placed too near it. The bark on the older shoots is of a light brown colour; but the younger, which are covered with leaves running into each other, are of as fine a green as any shrub whatever. These leaves are erect, and acute-pointed. They are placed opposite, and grow a little like those of the French Tamarisk. This shrub seldom produces flowers or berries; but when any berries do appear, they are small and of a blueish colour. It deserves a place amongst low-growing evergreens, on account of the fine strong green of its leaves both in winter and summer; but it is valuable for nothing else; for it produces neither flowers nor fruit ornamental, and is possessed of a very strong smell; insomuch that, being stirred by whatever runs amongst it, the whole air is filled with a fetid scent, which is emitted from its branches and leaves, and which to most people is disagreeable. It is in great request with horsedoctors and cowleeches, by which they much benefit those creatures in many disorders. The juice of it, mixed with milk and honey, is said to be good to expel worms from children; as well as, without that mixture, to destroy those in horses, for which purpose it is strongly recommended.

Upright Savin is a delightful tree; it will grow to be twelve or fourteen feet high. The branches are numerous and slender, and give the tree a genteel air. The leaves are nearly of the same nature with the other, though they are of a darker green. The flowers, though produced in plenty, make no show; but they are succeeded by berries in such plenty as to cause a good effect. The upright tendency of growth of this tree, together with the very dark green of the leaves, which causes a good contrast with others that are lighter, together with its not being possessed of that strong disagreeable scent of the other sort, makes it valuable for evergreen plantations.

Variegated Savin is a Variety of the former; it has not that tendency to spread like the Common, neither does it grow quite so upright as the Berry-bearing Savin. It is a fine plant, and at present rather scarce. The ends of several of the young shoots are of a fine cream colour; nay, all the smaller branches appear often of that colour, and at a distance will have the appearance of flowers growing on the tree. In short, to those who are fond of variegated plants, this shrub has both beauty and scarcity to recommend itself.

The method of PROPAGATING this genus of plants varies in some degree with the respective species.

The Common Juniper,
The Spanish Juniper,
The Virginia Cedar,
The Spanish Cedar,
The Lycian Cedar, and
The Phenician Cedar,

are raised from seeds procured from the respective places of their growth, and sown the latter end of February or the beginning of March, in beds of light sandy earth, about half an inch deep. In about twelve months after sowing the plants will appear. Having stood two years in the seed bed, they may be removed to the nursery, planting them from one to two feet distance in the rows, with two feet intervals; and here they may remain until wanted for use. They may be transplanted either in autumn or in spring, care being had to perform the removal in moist weather, preserving as much mould as possible amongst the fibres. HANBURY recommends that the seeds of the COMMON JUNIPER be sown as soon as possible after they are ripe; for if this precaution, he says, is observed, they will come up the spring following; whereas if they are neglected till the spring, they will not appear till the spring after that; and sometimes a great part of them will remain till the second and even third season before they come up. The COMMON JUNIPER may also be encreased by layers.

The Bermudian Cedar, and
The Jamaica Cedar,
require that the seeds be sown in pots: that the young seedlings be planted out into separate pots; and that these be always housed in the winter.

The COMMON SAVIN is to be encreased by slips, which if planted almost at any time, or any how, will grow. The Upright Savin also is to be encreased by slips planted in moist weather, in August, and kept shaded and watered in dry weather afterwards. This is the best way of treating cuttings of the Upright Savin, though they will often grow if planted at any time, either in winter or summer. The Striped Savin also is to be encreaed this way; though care must be always used to take off those branches that are most beautifully variegated, and such also as are entirely of a cream colour; for this will be the most probable method of continuing it in its variegated beauties. This plant is also to be raised by berries; and if these have the same treatment as the other sorts, it will be very proper; and by these the most upright and best plants are raised.

KALMIA.

LINNEAN Class and Order, *Decandria Monogynia*; Each flower contains ten males and one female. There are two SPECIES.

1. KA'LMIA *Latifo'lia:* The **BROAD-LEAVED KALMIA**; *an evergreen shrub;* native of Maryland, Virginia, and Pennsylvania.

2. KA'LMIA *Angustifo'lia:* The **NARROW-LEAVED KALMIA**; *an evergreen shrub;* native of Pennsylvania and Carolina.

1. The BROAD-LEAVED KALMIA seldom rises to more than four or five feet high; and the branches, which by no means are regularly produced, are hard, and of a grayish colour. The leaves are of an oval, spear-shaped figure, and of a fine shining green colour. Their consistence is rather thick in proportion to their footstalks, which are but slender, and grow irregularly on the branches. The flowers are produced at the ends of the branches, in roundish bunches. They are first of a fine deep red, but die away to a paler colour. Each is composed of a single petal, which is tubular at the bottom, spreading open at the top, and has ten permanent corniculæ surrounding them on their outside. They generally flower with us in July; and are succeeded by roundish capsules, full of seeds, which seldom ripen in England. In some places this is a fine evergreen; and in others, again, it often loses its leaves, and that sometimes before the winter is far advanced.

2. The NARROW-LEAVED KALMIA is rather of lower growth than the other, and the branches are more weak and tough. The leaves are very beautiful, being of a fine shining green; they are of a lanceolate figure, and in all respects are smaller than those of the former sort, and stand upon very short footstalks. They are produced in no certain regular manner, being sometimes by pairs, at other times in bunches, growing opposite at the joints. The flowers are produced from the sides of the branches in roundish bunches; they are of a fine red colour, and each is composed of one petal, that has the property of spreading open like the former. They flower in July, and are very beautiful; but are not succeeded by ripe seeds with us.

Both these sorts are to be PROPAGATED three ways; by seeds, layers, and suckers. 1. By seeds. These we receive from abroad; and for their reception we should prepare a compost, consisting of half fresh soil from a rich pasture, taken from thence a year before, and half drift or sea sand: these being well mixed, will be proper for the reception of the seeds, which should be sown in pots or boxes, half an inch deep. As soon as they are sown, they should be removed into a shady place, to remain until the spring following, and all this time nothing but weeding will be wanted; for they seldom if ever come up the first summer. About the beginning of March it will be proper to plunge these pots into a hotbed, and this will fetch the plants up, and make them grow strong. They must be hardened by degrees to the air, and then set in a shady place. Watering must be now and then given them, if the season proves dry; and at the approach of winter they may be removed into the greenhouse, or set under a hotbed frame, but should always have the free air in open weather. In these pots or boxes they should remain until they are two-years-old seedlings; when they should be shaken out, and planted in a separate pot. They should then be forced, by plunging the pots into a hotbed. Afterwards, they may be removed into the shade; and if they are kept growing in the pots, and removed under shelter in hard weather, for a year or two, they may be afterwards planted out finally. 2. These shrubs are propagated by layering. It should be done in the autumn; and the young wood of the preceding summer's shoot is proper for the purpose. If the soil is free and light, they will strike root pretty readily; though we must sometimes wait two years before we find any: But by this way the strongest plants are obtained in the least time. 3. They are also encreased by suckers; for if the soil be light and fine, and is what agrees with them, after standing a few years, they naturally send out suckers in plenty. These should be taken off in the spring: and those with bad roots should be set in pots, and plunged into a hotbed, to make them grow.

LAVÀTERA.

Linnean Class and Order, *Monadelphia Polyandria*: Each flower contains many males and many females; the males being joined together at the base. There are nine **Species**; four of which are cultivated in our open grounds:

1. **Lavate'ra** *Arbo'rea:* The **Common Lavatera** or **Mallow Tree**; *a deciduous shrub;* native of Italy.

2. **Lavate'ra** *Trilo'ba:* The **Three-lobed Lavatera**, or **Mallow Tree**; *a deciduous shrub;* native of Spain.

3. **Lavate'ra** *O'lbia:* The **Five-lobed Lavatera**, or **Mallow Tree**; *a deciduous shrub;* native of the South France.

4. **Lavate'ra** *Mi'cans:* or the **Glittering Lavatera**; or the **Shining-leaved Mallow Tree**; *a deciduous shrub:* native of Spain and Portugal.

1. The **Common Lavatera** is a well known plant: It usually grows to eight or ten feet high, and in a rich soil will grow to twelve, or more. The stem is thick and strong, and divides near the top into several branches, which are closely ornamented with large downy leaves; they are soft to the touch, plaited, and their edges are cut into many angles. The flowers are produced in clusters, from the wings of the leaves, in June, and there will be a succession of them until late in the autumn. Each flower has its separate footstalk: Their colour is purple; their shape like that of the Common Mallow; and they would make a great show, were they not much obscured by the largeness of the leaves. The whole tree has a noble look; and its continuing for about three months in flower makes it very valuable. But though its short-lived continuance is much to be regretted, yet Nature seems to have made some amends for this, by furnishing it with good seeds in very great plenty; for by these thousands of plants may be soon raised; nay, they will sometimes shed themselves, and come up without any art. But when

they are to be regularly sown, let it be done in April, in the places where they are designed to remain, and they will flower the summer after. Though this plant is called a biennial, in some warm dry situations the stalks become hard and woody, and the plants will continue to produce flowers and seeds for many years.

There are several *Varieties* of this species; the leaves of some being round and indented, others acutely cut, others waved: These among old gardeners go by the names of the *Round-leaved, Waved-leaved Mallow Tree, &c.*

2. The THREE-LOBED LAVATERA. This species is very ornamental in the front, or among the low shrubs in the wilderness quarters, or when stationed in large borders in pleasure grounds, as it is naturally of low growth, seldom rising to above four or five feet high. It has rather a large spreading root in proportion to the size of the shrub. The branches are numerous, and of a palish green colour; and the leaves are of different figures, though chiefly trilobate, or composed of three lobes, that are indented on their edges. They vary much in their size, some being larger, some smaller, and some more divided than others. Their colour, when the plant is in perfect health, is a very pleasant green; but they will often shew themselves a little variegated; at which time you may be assured the shrub is in a sickly state. This often does not continue long, and the plant will assume its former verdure, and as frequently and very speedily relapse into its weak state: which shews that, though hardy with respect to cold, it is rather of a sickly nature in this country. The flowers are produced singly, on short footstalks: they grow from the joints, at the bosoms of the leaves; three or four of them will appear at each joint; and being large, they make a fine show in August, the time of flowering.

There are *Varieties* of this species, differing in the shape of the leaves and size of the flowers, which still have names among old Botanists.

3. The FIVE-LOBED LAVATERA is a distinct species from the preceding, though it differs little from it, except in the nature of the leaves, each of which is

composed of five lobes, that are hastated, or pointed like a spear, and in the flowers of this shrub being smaller. They will be in full blow in August, and there will often be a succession of them till the early frosts advance. The leaves of this species vary: Some are shaped like Briony; others are nearly round; and the lobes of others are very acute. Hence the names Briony-leaved, Round-leaved, Acute-leaved Mallow Tree, &c. have been used to express them.

4. GLITTERING LAVATERA grows to about the height of the former. The leaves are large, septangular, plaited, downy, white, and glisten towards the sun. The flowers are produced in bunches from the ends of the branches: They are shaped like those of the common Mallow, come out in July, and continue in succession until the end of autumn.

The *Varieties* of this species go by the names of *Waved-leaved*, the *Common Spanish*, the *Sulphur-leaved Mallow Tree*, &c. These three sorts are easily PROPAGATED by cuttings, which should be planted, early in the spring, in a shady border of light rich earth. Many of them will grow; and the plants may stand two or three years before they are removed to the places where they are designed to remain.

The best method of PROPAGATING all the sorts is by seeds: and by this way fresh Varieties may be obtained. The seeds should be procured from Spain, where the plants naturally grow; for none, except the first sort, ripen well here. Having got a sufficient quantity, sow them in a border of light, fine, rich earth, about the middle of March. They will easily come up, and nothing but weeding and watering in dry weather will be required until the spring after; when they should be planted in nursery lines, there to remain until they are set out to stand. The leaves of all the sorts continue until the frosts come on; so that if an open winter happens, they will continue in verdure the greatest part of the season.

The Lavatera tribe affect a warm sandy situation and soil, in which they will sometimes continue to exhibit their beauties for many years; but in general they are short-lived, continuing only two or three years: this renders them peculiarly eligible to be scattered plentifully in a newly made shrubery; they will add warmth to young plants, and will die away themselves before the spaces they occupy will be required by the surrounding shrubs.

LAURUS.

LINNEAN Class and Order, *Enneandria Monogynia*: Each flower contains nine males and one female. There are eleven SPECIES; four of which are adapted to our purpose:

1. LAU'RUS *No'bilis:* The EVERGREEN BAY, or the COMMON BAY: *an evergreen shrub or tree;* native of Italy, Greece, and Asia.

2. LAU'RUS *Æstiva'lis:* The DECIDUOUS BAY; *a tall deciduous shrub;* native of swampy places, and the sides of brooks and rivers in Virginia.

3. LAU'RUS *Be'nzoin:* The BENZOIN TREE, or BENJAMIN TREE; *a deciduous tree or shrub;* native of Virginia and Pennsylvania.

4. LAU'RUS *Sa'ssafras:* The SASSAFRAS TREE; *a a deciduous tree or shrub;* native of Virginia, Carolina, and Florida.

1. The EVERGREEN BAY. EVELYN says, he has seen Bay Trees near thirty feet high, and almost two feet in diameter, and enumerates the Bay amongst *useful* trees. HANBURY catches at this idea, and tells us in general terms, that "it will grow to thirty feet in height, with a trunk of two feet in diameter," and, accordingly, he arranges it amongst his Forest Trees: he acknowledges however at the same time that the wood is of little value. The Bay is nevertheless a fine aromatic and a beautiful evergreen: It is said to be the true *Laurus* or Laurel of the Antients, with which they adorned the brows of their successful Generals. The leaves stand close, are about three inches long and two broad; are hard, rigid, and of a deep green colour. The Bay too, like the Holly, Box, and Laurel, will

bear the shade and drip of taller trees, and it is upon the whole a very desirable, as being a very *ornamental* evergreen. There are several *Varieties;* as the Broad-leaved Bay, the Narrow-leaved Bay, and the Wave-leaved Bay.

This tree is PROPAGATED by layers, or by the berries. In order to raise a quantity of these trees by layers, some stools should be planted for the purpose; and after these are shot about a yard high, the branches must be brought down to the ground in the winter, all the preceding summer's shoots laid on it, and pegged down (being first slit in the joint), and the leaves taken off, which would otherwise be under ground. In one year's time these layers will have taken root; and in the spring they should be taken up, and planted in the nursery a foot asunder, in rows two feet distance. After they are planted out, if the weather should prove dry, they must be constantly watered; for without such care, it is difficult to make this tree grow. After they have taken well to the ground, they will require no farther trouble than keeping them clean from weeds, and digging between the rows each winter, till they are finally planted out. 2. In order to raise this tree from the berries, they ought to hang on the trees till about January before they are gathered. A well sheltered spot of ground for the seminary must be made choice of; and having the mould smooth and fine, they should be sown soon after they are gathered in beds, or drills, rather more than half an inch deep. Towards the close of the spring the plants will come up; and during summer must be duly attended, by watering and weeding. In the winter following, their sheltered situation must not be trusted to, to defend them from the frost: Furze bushes, or some such things, ought to be stuck in rows, between the beds or drills, to guard them from the black frosts. Indeed, without this precaution, if the winter should prove very frosty, few of the young seedlings will be alive in spring. During the following summer, weeding and watering must be observed, and the winter after that they should be defended with covering as before; for they will be still in danger of being destroyed by severe frosts. In the ensuing spring, the strongest may be taken out of the seed beds, and planted in the nursery way; though if they have not by that time made good shoots, it will be adviseable to let them remain in their beds till the third spring; for a small plant of this kind is with more difficulty made to grow than one which is larger. When they are planted in the nursery, the distance which should be allowed them is the same as the layers, a foot asunder and two feet distance in the rows; and this will not be found too close; for nothwithstanding the greatest care is exerted in planting them in the nursery, even making choice of rainy and cloudy weather, which must always be observed in setting them out, many of them will be lost by being transplanted. After they are thus planted out in the nursery, whether layers or seedlings, they must be still watered in dry weather, kept free from weeds, and the rows dug between every winter. You will even find, that those plants which suffer least by being transplanted will have met with a check, which they will not recover in two or three years; and till they have acquired new strength they should not be taken from the nursery; but when they appear to be good stiff plants, having the year before made a vigorous shoot, they will be then proper plants for planting out where they are to remain. Holes should be got ready for their reception; and as soon as the first autumnal rains fall, the work should be set about, especially if the land be gravelly or dry: but if it be moist, the spring will do as well. Being now planted at one yard distance, they will make a poor progress for two or three years more; but after this, when they have overcome all these difficulties, they will grow very fast, and arrive to be good trees in a few years.

Although this tree flourishes best in old gardens, where the soil has been made rich and deep, and loves the shade, HANBURY tells us, "it thrives nevertheless exceedingly well in our hottest gravels and sands; and, after it has surmounted the hardships of transplanting, will grow in such situations extremely fast, and arrive to a larger bulk.

2. The DECIDUOUS BAY, in a moist rich soil, in which it principally delights, will grow to be about sixteen feet high; but in some soils, that are possessed of the opposite qualities, it will hardly arrive at half

that height. The branches are not very numerous, but they are smooth, and of a purplish colour, look well in winter and in summer exhibit their leaves of an oval spear-shaped figure: They are about two or three inches in length, are proportionally broad, and placed opposite to each other on the branches. Their upper surface is smooth, and of a pleasant green colour, whilst their under is rough and veined. The flowers are small and white, make no figure, come out from the sides of the branches in May, and are succeeded by large red berries, which never ripen in England: So that, nothwithstanding the leaves in summer are very pretty, and the colour of the bark makes a variety in winter, it is principally the scarcity of this plant which makes it valuable.

3. The BENZOIN TREE will grow to a much larger size than the other, and its branches are rather numerous: They are smooth, and of a fine light green colour. The leaves are oval, acute, near four inches long, and two broad; their upper surface is smooth, and of a fine light green colour, but their under surface is venose, and of a whitish cast: when bruised, they emit a fine fragrance. The flowers make no figure: They are small and yellowish, come out from the sides of the branches in little clusters, and are succeeded by large blackish berries, which never ripen in England.

4. The SASSAFRAS TREE. The wood of the Sassafras is well known in the shops, where it is sold to be made into tea, being esteemed an excellent antiscorbutic and purger of the blood A decoction of the leaves and bark is also said to possess the same virtues, and is drank by many persons for those purposes. This tree will grow to nearly the height of the others, though the branches are not so numerous. Its bark is smooth, and of a red colour, which beautifully distinguishes it in winter; whilst the fine shining green of its leaves constitutes its greatest beauty in summer. In these, indeed, there is a variety, and a very extraordinary one. Some are large, and of an oval figure; others are smaller, and of the same shape; whilst others, again, are so divided into three lobes, as to resemble the leaves of some sorts of the Fig tree. Their edges are entire; their under surface is of a whitish cast; their

footstalks are pretty long, placed alternately on the branches, and die to a red colour in the autumn. The flowers are small and yellowish: They are produced in clusters on longish pedicles, and are succeeded by blackish berries, which never ripen in England.

The PROPAGATION of these three sorts of trees may be performed two or three ways. 1. By the seeds. These we receive, from the places where the trees grow naturally, in the spring. They should be preserved in sand; and as soon as they arrive, should be sown in largish pots, an inch deep. The soil for their reception should be taken from a rich pasture at least a year before, with the sward. It should also be laid on a heap, and frequently turned, until the sward is grown rotten, and the whole appears well mixed and fine. If the pasture from when it was taken near the surface is a sandy loam, this is the best compost for these seeds; if not, a small addition of drift or sea sand should be added, and well mixed with the other mould. After filling the pots with this soil, the seeds should be sown an inch deep; and then they should be plunged into common mould up to the rim. If the soil be naturally moist, it will keep them cooler, and be better; and if the place be well sheltered and shaded, it will be better still. Nothing more than weeding, which must be constantly observed during the summer, will be necessary; and in this station they may remain until the March following; about the middle of which month, having prepared a good hotbed, the pots should be taken up and plunged therein. Soon after the seeds will come up; and when the young plants have sufficiently received the benefit of this bed, they should be enured by degrees to the open air. Weeding and watering must be observed during the summer; and, at the approach of the cold weather in the autumn, they should be removed under a hotbed frame, or some cover, to be protected from the frosts during the winter. In the spring, when this danger is over, they should resume their first station; namely, the pots should be plunged up to the rim, as when the seeds were first sown; and if this place be well sheltered, they may remain there all winter; if not, and severe frosts threaten, they should be taken up and placed under cover as before. After they have been thus managed three years from the seeds, they should be taken out of the pots with care, and planted in the nursery ground, at small distances; where they may remain until they are strong enough to be finally set out. By sowing the seeds in pots, and assisting them by a hotbed, a year at least is saved; for they hardly ever come up, when sown in a natural border, under two years from the seeds; nay they have been known to remain three, and even some plants to come up the fourth year after sowing; which at once shews the preference of the former practice, and should caution all who have not such convenience, not to be too hasty in disturbing the beds when the seeds are sown in the natural ground; as, especially if they are not well preserved in mould or sand, these may be some years before they appear. Indeed, it is the long time we are in obtaining these plants, either by seeds, layers, &c. that makes them at present so very scarce amongst us. 2. These plants may also be encreased by layers; but very slowly; for they will be two, and sometimes three, or even four years, before they have struck out good roots; though the Benjamin Tree is propagated the fastest by this method. The young twigs should be laid in the ground in the autumn; and it will be found that twisting the wire round the bud, so as in some degree to stop the progress of the sap, and taking away with a knife a little of the bark, is a more effectual method of obtaining good roots soon than by the slit or twisting, especially when practised on the Sassafras Tree. 3. Plants of these sorts are likewise sometimes obtained by suckers, which they will at all times throw out, and which may be often taken off with pretty good roots; but when they are weak, and with bad roots, they should be planted in pots, and assisted by a moderate heat in a bed: With such management they will be good plants by the autumn, and in the spring may be planted out anywhere. 4. Cuttings of these trees, when planted in a good bark bed, and duly watered, will also oftentimes grow. When this method is practised, and plants obtained, they must be enured by degrees to the open air, till they are hardy enough to be finally planted out.

LIGUSTRUM.

LINNEAN Class and Order, *Diandria Monogynia*: Each flower contains two males and one female. There is only one SPECIES:

LIGU'STRUM *Vulga're:* The PRIVET; a well known *deciduous or evergreen shrub;* common in the woods and hedges of many parts of England, and almost all Europe.

The PRIVET is divisible into two *Varieties:*

The Deciduous or Common Privet, and
The Evergreen Privet.

The *Deciduous Privet* will grow to the height of about ten or twelve feet. The branches are very numerous, slender, and tough; covered with a smooth gray bark; and, when broken, emit a strong scent. The young twigs are generally produced opposite, and alternately of contrary directions on the older branches. The leaves also are placed opposite by pairs in the same manner. They are of an oblong figure, small, smooth, of a dark green colour, have a nauseous disagreeable taste, and continue on the trees very late. The flowers are produced in close spikes, at the ends of the branches, in May, June, and often in July: They are white, very beautiful, and succeeded by black berries, which in the autumn will constitute the greatest beauty of this plant; for they will be all over the tree, at the ends of the branches, in thick clusters. They are of a jet black: and will thus continue to ornament it in this singular manner during the greatest part of the winter.

The PROPAGATION of the Privet is easy; for it may be encreased, 1. By the seeds; and by this way the strongest plants may be obtained. The seeds, soon after they are ripe, should be sown in any bed of common garden mould made fine. They ought to be covered about half an inch; and all the succeeding summer should be kept clean from weeds; for the plants never, at least not many of them, come up until the spring after. After they are come up, they will require no other care than weeding; and in the spring following may be planted in the nursery ground, where they will require very little care besides keeping the weeds down, until they are taken up to plant. 2. These plants may be encreased by layers; for the young shoots being laid in the ground in the autumn, will by that time twelvemonth have taken good root; the largest of which may be planted out to stand, and the smallest set in the nursery to gain strength. 3. Cuttings also, planted in October, will strike root freely; and if the soil is inclined to be moist, and is shaded, it will be the better for them, especially if the succeeding summer should prove a dry one. If these cuttings are thinly planted, they will require no other removing till they are finally set out. If a large quantity is desired, they may be placed close, within about two or three inches of each other, and then taken up and planted in the nursery the autumn following, to remain there until they are wanted for the above purpose. It propagates itself by *suckers* and by *layers*, whenever the twigs or branches touch the ground.

The Privet, of all others, will thrive best in the smoke of great cities; so that whoever has a little garden in such places, and is desirous of having a few plants that look green and healthy, may be gratified in the Privet, because it will flourish and look well there. It will also grow very well under the shade and drip of trees.

The *Evergreen Privet.* This Variety has a tendency to grow to be a taller and a stronger tree than the common deciduous sort. The leaves are rather larger, more pointed, of a thicker consistence, of a dark green colour, and they continue on the same plant so long as to entitle it to the appellation of Evergreen; though it may often be observed to be almost destitute of leaves early in winter, especially those that were on the ends of the highest branches, which are often taken off by the first cutting winterly winds. In order to have this tree keep up the credit of an evergreen, it should have a well sheltered situation; for although it be hardy enough to bear with impuntiy the severest cuts of the northern blasts, on the tops of hills, craggy rocks, &c. yet without some shelter the leaves are seldom preserved all winter, and with protection it is generally allowed to be a handsome evergreen. As it is a Variety of the deciduous sort, the same flowers and fruit may be expected.

It is to be raised in the same manner, by layers or cuttings; and the seeds of this sort sometimes produce plants of the like sort, that retain their leaves. It will bear a very moist situation.

LIQUIDAMBER.

Linnean Class and Order, *Monoecia Polyandria*: Male flowers containing many stamina, and female flowers containing two pistils, situated upon the same plant; the males being collected into long conical loose catkins; and the females, forming a globe situated at the base of the male spike. There are only two Species:

1. Liquida'mber *Styraci'flua*: The Virginia Liquidamber, or the Maple-leaved Liquidamber; *a deciduous tree;* native of the rich moist parts of Virginia and Mexico.

2. Liquida'mber *Peregri'num*: The Canada Liquidamber, or the Spleenwort-leaved Gale; *a deciduous tree;* native of Canada and Pennsylvania.

1. The Virginia Liquidamber will shoot in a regular manner to thirty or forty feet feet high, having its young twigs covered with a smooth light brown bark, while those of the older are of a darker colour. The leaves grow irregularly on the young branches, on long footstalks: They resemble those of the Common Maple in figure; the lobes are all serrated; and from the base of the leaf a strong midrib runs to the extremity of each lobe that belongs to it. They are of a lucid green, and emit their odoriferous particles in such plenty as to perfume the circumambient air; nay, the whole tree exsudes such a fragrant transparent resin, as to have given occasion to its being taken for the Sweet Storax. These trees, therefore, are very

proper to be planted singly in large opens, that they may amply display their fine pyramidal growth, or to be set in places near seats, pavilions, &c. The flowers are of a kind of saffron colour; They are produced at the ends of the branches the beginning of April, and sometimes sooner; and are succeeded by large round brown fruit, which looks singular, but is thought by many to be no ornament to the tree.

2. CANADA LIQUIDAMBER. The young branches of this species are slender, tough, and hardy. The leaves are oblong, of a deep green colour, hairy underneath, and have indentures on their edges alternately, very deep. The flowers come out from the sides of the branches, like the former; and they are succeeded by small roundish fruit, which seldom ripens in England.

The PROPAGATION of both these species is the same, and may be performed by seeds or layers; but the first method is the best. 1. We receive the seeds from America in the spring. Against their arrival a fine bed, in a warm well sheltered place, should be prepared. If the soil is not naturally good, and inclined to be sandy, it should be wholly taken out near a foot deep, and the vacancy filled up with earth taken up a year before, from a fresh pasture, with the sward and all well rotted and mixed by being often turned, and afterwards mixed with a sixth part of drift or sea sand. A dry day being made choice of, early in March let the seeds be sown, and the finest of this compost riddled over them a quarter of an inch deep. When the hot weather in the spring comes on, the beds should be shaded, and waterings given often, but in very small quantities, only affording them a gentle, nay, a very small sprinkling at a time. MILLER says, the seeds of these plants never come up under two years. But, continues HANBURY, with this easy management, I hardly ever knew it longer than the end of May before the young plants made their appearance. The plants being come up, shading should still be afforded them in the parching summer, and a watering every other night; and this will promote their growth, and cause them to become stronger plants by the autumn. In the autumn, the beds should be hooped to be covered with mats in the severe frosts. These mats, however, should always be taken off in open weather; and this is all the management they will require during the first winter. The succeeding summer they will require no other trouble than weeding; though, if it should prove a very dry one, they will find benefit from a little water now and then. By the autumn they will be grown strong enough to resist the cold of the following winter, without demanding the trouble of matting, if the situation is well sheltered; if not, it will be proper to have the hoops prepared, and the mats ready, against the black northern frosts, which would endanger at least their losing their tops. After this, nothing except weeding will be wanted; and in the spring following, that is, three years from their first appearance, they should be taken up (for they should not be removed before, unless some of the strongest plants be drawn out of the bed) and planted in the nursery, a foot asunder, and two feet distant in the rows. Hoeing the weeds in the rows in the summer, and digging them in the winter, is all the trouble they will afterwards occasion until they are finally planted out. 2. These plants are easily encreased by layers. The operation must be performed in the autumn, on the young summer's shoots; and the best way is by slitting them at a joint, as is practised for carnations. In a strong dry soil, they will be often two years or more before they strike root; though, in a fine light soil, they will be found to take freely enough. By this method good plants may be obtained, though it is not so eligible as the other, if we have the conveniency of procuring the seeds.

LIRIODENDRON.

Linnæan Class and Order, *Polyandria Polygynia*: Each flower contains many males and many females. There are two **Species**; one of them bearing a tulip-like, the other a lily-like flower; the former is not uncommon in our open grounds:

LIRIODE'NDRON *Tulipi'fera:* The TULIP TREE, or the VIRGINIA TULIP TREE; *a deciduous tree;* native of most parts of America.

The TULIP TREE. In those parts of America where it grows common, it will arrive to a prodigious bulk, and affords excellent timber for many uses; particularly, the trunk is frequently hollowed, and made into a canoe sufficient to carry many people; and for this purpose no tree is thought more proper by the inhabitants of those parts. With us, it may be stationed among trees of forty feet growth. The trunk is covered with a gray bark. The branches, which are not very numerous, of the two years old wood, are smooth and brown; whilst the bark of the summer's shoots is smoother and shining, and of a blueish colour. They are very pithy. Their young wood is green, and when broken emits a strong scent. The leaves grow irregularly on the branches, on long footstalks. They are of a particular structure, being composed of three lobes, the middlemost of which is shortened in such a manner, that it appears as if it had been cut off and hollowed at the middle: The two others are rounded off. They are about four or five inches long, and as many broad. They are of two colours; their upper surface is smooth, and of a stronger green than the lower. They fall off pretty early in autumn; and the buds for the next year's shoots soon after begin to swell and become dilated, insomuch that, by the end of December, those at the ends of the branches will become near an inch long, and half an inch broad. The outward lamina of these leaf buds are of an oval figure, have several longitudinal veins, and are of a blueish colour. The flowers are produced with us in July, at the ends of the branches: They somewhat resemble the Tulip, which occasions its being called the Tulip tree. The number of petals of which each is composed, like those of the Tulip, is six; and these are spotted with green, red, white, and yellow, thereby making a beautiful mixture. The flowers are succeeded by large cones, which never ripen in England.

The PROPAGATION of the Tulip tree is very easy, if the seeds are good; for by these, which we receive from abroad, they are to be propagated. No particular compost need be sought for; neither is the trouble of pots, boxes, hotbeds, &c. required: They will grow exceedingly well in beds of common garden mould, and the plants will be hardier and better than those raised with more tenderness and care. Therefore, as soon as you receive the seeds, which is generally in February, and a few dry days have happened, that the mould will work freely, sow the seeds, covering them three quarters of an inch deep; and in doing of this, observe to lay them lengthways, otherwise, by being very long, one part, perhaps that of the embryo plant, may be out of the ground soon, and the seed be lost. This being done, let the beds be hooped; and as soon as the hot weather and drying winds come on in the spring, let them be covered from ten o'clock in the morning until sunset. If little rain happens, they must be duly watered every other day; and by the end of May the plants will come up. Shade and watering in the hottest summer must be afforded them, and they will afterwards give very little trouble. The next winter they will want no other care than, at the approach of it, sticking some furze bushes round the bed, to break the keen edge of the black frosts; for it is found that the seedlings of this sort are very hardy, and seldom suffer by any weather. After they have been two years in the seed bed, they should be taken up and planted in the nursery, a foot asunder, and two feet distant in the rows. After this, the usual nursery care of hoeing the weeds, and digging between the rows in the winter, will suffice till they are taken up for planting out.

LONICERA.

Linnean Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are fourteen Species; eleven of which will bear the open air of this country.

1. Lonice'ra *Caprifo'lium*: The Italian Honey-

SUCKLE; *a deciduous or evergreen climber;* native of Italy and the South of Europe.

2. LONICE'RA *Pericly'menum:* The ENGLISH HONEY SUCKLE, or WOODBINE; *a deciduous or evergreen climber;* native of England, Germany, and the midland parts of Europe.

3. LONICE'RA *Sempervi'rens:* The TRUMPET HONEYSUCKLE; *a deciduous or evergreen climber;* native of America.

4. LONICE'RA *Diervi'lla:* The DIERVILLA, or ACADIAN HONEYSUCKLE; *a deciduous shrub;* native of Acadia and Nova Scotia.

5. LONICE'RA *Symphorica'rpus:* ST. PETER'S WORT, or the VIRGINIA HONEYSUCKLE; *a deciduous shrub;* native of Virginia and Carolina.

6. LONICE'RA *Cæru'lea:* The BLUE-BERRIED HONEYSUCKLE, or the UPRIGHT BLUE-BERRIED HONEYSUCKLE; *a deciduous shrub;* native of Switzerland.

7. LONICE'RA *Alpige'na:* The RED-BERRIED HONEYSUCKLE; or the UPRIGHT RED-BERRIED HONEYSUCKLE; or the ALPINE HONEYSUCKLE; *a deciduous shrub:* native of Savoy and the Helvetian and Pyrenean Mountains.

8. LONICE'RA *Ni'gra:* The BLACK-BERRIED HONEYSUCKLE; or the BLACK-BERRIED UPRIGHT HONEYSUCKLE; *a deciduous shrub;* native of Switzerland and the Alps.

9. LONICE'RA *Xylo'steum:* The FLY HONEY-SUCKLE; *a deciduous shrub;* native of most of the coldest parts of Europe.

10. LONICE'RA *Pyrena'ica:* The PYRENEAN HONEYSUCKLE, or DWARF CHERRY; *a deciduous shrub;* native of the PYRENEAN MOUNTAINS.

11. LONICE'RA *Tarta'rica:* The TARTARIAN HONEYSUCKLE, or DWARF CHERRY, or the DWARF CHERRY WITH HEART-SHAPED LEAVES; *a deciduous shrub;* native of Tartary.

1. The ITALIAN HONEYSUCKLE. The *Varieties* of this species are, Early White Italian Honeysuckle, Early Red Italian Honeysuckle, Yellow Italian Honeysuckle, Late Red-flowered Italian Honeysuckle, Evergreen Italian Honeysuckle.

The *Early White Italian Honeysuckle* is that which first makes its appearance in May. The leaves of this sort are oval, and placed opposite by pairs, close to the branches, at the extremity of which the leaves quite surround it. The flowers grow in bunches round the ends of the branches, and have a very fine scent. Their blow will be soon over; and they are succeeded by red pulpy berries, which will be ripe in the autumn.

The *Early Red* differs from the preceeding in that the leaves are narrower, the fibres of the flowers are more slender, and it blows a little later in the spring.

The *Yellow Italian Honeysuckle* does not blow quite so early as the other, and the flowers are yellow: In other respects it is very much like the former.

Late Red-flowered Italian Honeysuckle is one of the best we have. The stem is tolerable firm; the branches are few, and the leaves large; the flowers are also large, of a deep red colour, though less scented than the earlier sorts.

Evergreen Italian Honeysuckle. This is a stronger shooter than any of the sorts. The joints are more distant from each other. The leaves are large, of a thick consistence, unite, and surround the stalk with their base, and continue all winter. The flowers are large, of a good red colour, with some paler stripes, and often continue to blow to the end of autumn.

2. ENGLISH HONEYSUCKLE. The *Varieties* of this species are, The Common Woodbine of our Hedges, The Oak-leaved Honeysuckle, Red Dutch Honeysuckle, Midsummer Honeysuckle, Late German Honeysuckle, Long-blowing Honeysuckle, Evergreen Honeysuckle.

The *Common Woodbine* is known all over England, in our woods and hedges. There are still Varieties of this sort, in its wild state; some having prodigious weak trailing branches; others again with tolerably woody stems. Some of the flowers are whitish, others are of a greenish cast; whilst others are possessed of a reddish tinge. As the flowers of none of these are nearly so beautiful as those of the cultivated sorts, only a plant or two of them should be introduced; which will cause some variety, and serve as a foil to set the others off. There is a *Sub-Variety* of this sort, with striped leaves.

Oak-leaved Honeysuckle is an accidental variety of our Common Woodbine. It differs in no respect from it, only that some of the leaves are shaped like those of the Oak tree, on which account it is valuable, and makes a pretty variety in collections.

There is also a *Sub-Variety* of this sort, with leaves beautifully variegated, called *Striped Oak-leaved Honeysuckle.*

Red Dutch Honeysuckle is a very good sort. It flowers in June, and will often continue in blow a month or two. The branches have a smooth purplish bark, and may be known from the others even in winter, when they will appear with their swelled buds also of that colour. The leaves are of an oblong oval figure, and stand opposite by pairs on the branches, on short footstalks. The flowers are produced in bunches at the ends of the branches: Their outside is red, but within they are of a yellowish colour, and possessed of a delightful odour.

The *Midsummer Honeysuckle* is very much like the former, only the stalks are more slender, of a lighter brown colour, and the tubes of the flowers are smaller, neither are they so red. It will be in blow about Midsummer: and the plant, whether set against a wall, pales, a hedge, or in the ground, will be all over covered with bloom, making an enchanting appearance to the eye, and perfumining the air all around to a considerable distance.

Late German Honeysuckle is very much like the Red-Dutch, only it blows latter. It will flower in July and August; and has all the properties of the other sorts as to fragrance and beauty.

The *Long-blowing Honeysuckle* is still another Variety of the Dutch. It will often exhibit flowers in June, July, and August, though the profusion will not be so great as that of the other sorts.

Evergreen Honeysuckle is another Variety which retains its leaves all winter. It often flowers late in the autumn; and sometimes, in mild seasons, retains its bloom until Christmas, which makes it still more valuable.

3. TRUMPET HONEYSUCKLES. Of these are the following *Varieties:* Virginian Trumpet Honeysuckle,

Carolina Trumpet Honeysuckle, Evergreen Trumpet Honeysuckle.

Virginian Trumpet Honeysuckle is the most beautiful of all the sorts, though Nature has denied it smell. The branches are slender, smooth, and of a reddish colour. The leaves sit close to the branches by pairs. They are of an oblong oval figure, and their lower surface is not of so shining a green as the upper. Those at the extremity of the branches near the flowers surround the stalk, through which it comes. The flowers grow in bunches, at the ends of the shoot, and are of a bright scarlet colour. They will often be in blow from June to October; but the flowers have no scent.

Carolina Trumpet Honeysuckle differs in no respect form the former, only that the branches are more slender, and the leaves and flowers alſo are proportionally smaller, thereby making a pretty variety. This ſort was introduced into our gardens from Carolina, as was the preceding from Virginia.

Evergreen Trumpet Honeysuckle. The leaves are of a thicker substance, and continue on the plants all winter; but the flowers are of a deep scarlet, like the other, and are possessed of little or no fragrance.

The PROPAGATION of these sorts is very easy 1. The young branches being laid in the ground any time in the winter, with no other art, will become good plants by the autumn following, and may be then taken off for use. 2. But our common method of propagating these sorts is by cuttings. The best month for this work is October. By this way prodigious quantities of plants may be raised, and hardly any of them will fail growing. So easily may these delightful plants be multiplied, when a plant of each sort is once obtained.

The Evergreen Italian Honeysuckle (the best of the evergreen sorts) does not readily take by *cuttings;* so that in order to make sure of this plant, the young branches must be *layered*, any time in the autumn or winter, and by the autumn following they will have plenty of roots, and be good plants fit for removing to any place.

The Evergreen Honeysuckles, though climbing plants, should occasionally be stationed in the evergreen quarters, as should all the other sorts among the deciduous trees and shrubs; being so managed that their appearance may agree with those of upright growth. This is done by nipping off the young shoots (which will soon get rambling and out of reach), that the plants may be kept within bounds, and made to join in the collection with great beauty. Neither may they only be kept low, to almost what height is required; but they may, by fixing a stake for their support, be trained up to a stem, which will every year grow more and more woody and firm; so that in this case the eye must frequently overlook the tree, to take off the young shoots as they grow out, and not permit the head to grow too large and spreading for the stem, which it soon would do without this care; and with it, the head may be so kept in order as to bear good proportion to the stem, thereby causing the tree to have the appearance of an upright shrub.

4. DIERVILLA is a shrub of about the height of three or four feet. The branches are few, and larger in proportion than the height of the shrub; they are very full of pith, and when broken emit a strong scent. The leaves are placed opposite by pairs, on short footstalks: They are near three inches long, and about half as broad; and of an oblong heart-shaped figure, finely serrated, and end in acute points: Their upper surface is smooth, and of a fine green colour; their under is lighter, and has five or six pair of strong nerves running irregularly from the midrib to the borders. The flowers are produced in loose bunches, both at the ends and at the sides of the branches: Each is formed of one leaf; the tube is long, and the top is divided into five parts, which turn backward. They are of a yellow colour, and will be in blow in May, and sometimes most of the summer months. These flowers are succeeded, in the countries where they grow naturally, by black oval berries, each containing four cells. Diervilla forms an agreeable variety amongst other shrubs of its own growth, though the flowers make no great figure. It is very hardy with respect to cold; and may be planted in any part of the nursery where it is wanted.

No art is required to PROPAGATE this plant; it spawns, and thus propagates itself in great plenty.

These suckers should be taken up in autumn, and planted out in the nursery: After remaining there a year or two, they may be finally taken up. This tree may be also encreased by cuttings. They should be planted in October, very close, if a quantity are wanted. By the autumn following, they will have good roots. They may be taken up and planted in the nursery, like the spawn, for a year or two, and then set out to stand. Plants raised this way will not be quite so subject to throw out suckers as the others.

5. St. Peter's Wort. St. Peter's Wort will arise to the height of about four or five feet. The main stems are ragged, and of a dirty dark brown. The branches are numerous and short, though oftentimes it sends out some trailing slender branches, which will grow to a great length. The leaves of this shrub constitute its greatest beauty: They are very numerous, small, about half an inch long, and of an oval figure. Their footstalks are exceedingly short, and they stand opposite by pairs on the slender branches: These die in the autumn to a dark brown. The time of this plant's flowering is August. The flowers grow round the stalks: They are small, of an herbaceous colour, and make no figure.

The propagation is very easy. 1. If a spadefull of mould be thrown over each of the trailing branches, any time in the winter, they will by the autumn following have struck root; and these may be planted out in the nursery, to stand until they are of a proper size to be planted out for good. 2. This shrub may be also propagated by cuttings; and in order to obtain good cuttings for the purpose, the year before the plants should be headed near the ground, which will make them shoot vigorously the summer following. These young shoots must be the cuttings to be planted. October is the best month for the work; and if they are planted in a moistish soil, and have a shady situation, they will have taken good root by the autumn. If they are planted very thick, as cuttings commonly are, they should be all taken up and planted in the nursery a foot asunder, and two feet distant in the rows; but if the living cuttings are no nearer than about a foot, they may remain without removing until they are planted out.

6. The **Blue-berried Honeysuckle** is a shrub of about four feet in growth. The branches are round, smooth, and of a reddish purplish colour. The leaves are oblong, spear-shaped, of a fine green, and stand opposite by pairs on the branches. The flowers, which are white, are produced in May from the sides of the branches, and are succeeded by blue berries, that will be ripe in August.

7. The **Red-berried Honeysuckle** will grow to the height of about five feet. The branches are very upright; the young shoots are angular, and covered with a brown bark. The leaves are tolerably large, spear-shaped, a little resembling those of the mock Orange, and grow opposite to each other. The flowers are produced from the sides of the branches, on long footstalks: They are of a red colour, come out in April, and are each succeeded by a pair of red berries, which will be ripe the end of July or early in August.

8. **Black-berried Honeysuckle** differs from the Blue-berried only in that the seeds of this are black, and grow two together: whereas those of the Blue-berried are single and distinct. Except this, there is hardly any difference to be perceived.

9. **Fly Honeysuckle** will grow to the height of about seven or eight feet. The bark on the branches is of a whitish colour, which causes a variety, and makes it distinguished in the winter season. The leaves, which are placed opposite by pairs, are downy, and of an oblong oval figure. The flowers are white and erect: They are produced from the sides of the branches in June, and are succeeded by two red berries, which will be ripe in September.

10. The **Pyrenean Honeysuckle**, or **Dwarf Cherry**, is but a low shrub: It seldom arrives to more than a yard in height. The branches are produced irregularly. The leaves are smooth, oblong, and placed opposite by pairs. The flowers are white, produced from the sides of the branches, on slender footstalks, in April; and are succeeded by roundish berries, which will be ripe in September.

11. **Tartarian Honeysuckle**, or **Dwarf Cherry with Heart-shaped Leaves**, is a shrub of about three or four feet high. Its branches are

erect, like the upright sorts; and it differs in few respects from them, except that the leaves are heart-shaped. It exhibits its flowers in April; and these are succeeded by twin red berries, which will be ripe in August.

These are the *Upright* sorts of the Lonicera; to which one method of PROPAGATION is common; and that may be performed two ways. 1. By seeds. Common garden-mould, dug fine, and cleared of the roots of all weeds, will serve for their reception. In this the seeds should be sown soon after they are ripe, about half an inch deep. After the beds are neated up, they will require no other care until the spring; when the weeds should be picked off as fast as they appear. Some of the plants by this time will have come up; but the far greater part will remain until the second spring before they shew themselves; so that the beds must be entirely untouched until at least two years after sowing. They will require no care all this time, except being kept clear of weeds; though if watering be afforded them in dry weather, it will be the better. After they are all up, and have stood a year or two in the seed bed, they may be taken up and planted in the nursery, at small distances; and in two or three years they will be of a proper size to plant out to stand. 2. All these sorts may be also propagated by cuttings. These should be planted in October, in any sort of garden mould that is tolerably good. If a quantity is wanted, they may be placed very close; and a small spot of ground will hold thousands. If the place be shaded, it will be a great advantage, as most cuttings are in danger of suffering by the violence of the sun's rays before they have struck, or whilst they are striking root. The winter following, they may be all taken up and planted out in the nursery, a foot asunder, and two feet distant in the rows, where they may stand until they are finally taken up for planting.

LYCIUM.

Linnean Class and Order, *Pentandria Monogynia:* Each flower contains five males and one female. There are eight **Species**; one only of which is hardy enough to stand a severe winter in our climate.

Ly'cium *Bárbarum:* The **Boxthorn**; *a deciduous creeper;* native of Asia, Africa, and Europe.

The **Boxthorn**. This species affords two *Varieties:*

The Broad-leaved Boxthorn.
The Narrow-leaved Boxthorn.

The Broad-leaved Boxthorn is a rambling plant, and will, if let alone, in a few years overspread every thing that is near it. The branches are very many, and spread about in all directions. They will lie upon the ground, if unsupported, and will shoot, in a good soil, sixteen feet in length in one summer. Those branches that lie upon the ground will strike root; so that from every part fresh shoots will be set forth the next spring; and thus in a few years they will occupy a large compass of ground; so that whenever this plant is desired, they should be constantly kept within bounds. Indeed, from its exceedingly rambling nature, not above a plant or two for variety or observation should be admitted in hardly any place. The branches of this plant are covered with a gray or whitish bark. The leaves are of a light whitish green, and of a thick consistence. They grow on the branches, on all sides, by threes. This plant, of all the sorts, is possessed of the longest spines (some of which are a foot or more in length.) These spines are garnished with leaves; and on these they for the most part stand singly in an alternate manner. On the branches where they grow by threes, the middle one is always the largest. They are all of an oval, spear-shaped figure, are very smooth, a little glossy, and often continue till the middle of winter before they fall off. Besides the long leafy thorns before mentioned, it produces many short sharp spines, of a white colour, near the ends of the shoots. The flowers are produced in

August, and there will be often a succession of blow until the frosts come on. They grow single at the joints, on short footstalks. They are of a purplish colour, small, and are succeeded by no fruit with us, as I could observe.

The *Long Narrow-leaved Boxthorn* is also a very great rambler. The branches are many, and are produced irregularly on all sides. It is possessed of spines, but these are very short, and the bark with which they are all covered is pretty white. The leaves are of a lanceolate figure, and are narrow and long. Their colour is that of a whitish green, and they grow alternately on the branches. The flowers are small, and appear in July; and are succeeded by red berries, which ripen in September, and at that time are very beautiful.

The PROPAGATION of these sorts is by cuttings; for they will grow, if planted at any time, in any manner, and in almost any soil or situation, except a white clay. In a black rich earth, they will be the most healthful and most vigorous shooters; and though the cuttings will grow at all times, yet the winter months are to be preferred for the purpose.

MAGNOLIA.

LINNEAN Class and Order, *Polyandria Polygynia*: Each flower contains many males and many females. There are four SPECIES:

1. MAGNO'LIA *Glau'ca*: The SEA-GREEN MAGNOLIA, or the BAY-LEAVED TULIP TREE, or the SMALL MAGNOLIA; *a tall sub-evergreen shrub;* native of Virginia and Pennsylvania.

2. MAGNO'LIA *Acumina'ta*: The LONG-LEAVED MAGNOLIA; *a sub-evergreen shrub or tree;* native of Pennsylvania.

3. MAGNO'LIA *Tripe'tala*: The UMBRELLA TREE; *a sub-evergreen shrub or tree;* native of Carolina and Virginia.

4. **Magno'lia** *Grandiflo'ra:* The **Evergreen Magnolia**, or **Laurel-leaved Tulip Tree**; *an evergreen tree;* native of Florida and Carolina.

1. The **Sea-green** or **Small Magnolia** grows with us to about the height of ten or twelve feet. The wood is white; and the branches, which are not very numerous, are covered with a smooth whitish bark. The leaves are tolerably large, and of two colours; their upper surface being smooth, and of a fine green, whilst their under is hoary. They are of an oval figure, have their edges entire, and often continue the greatest part of the winter before they fall off the trees. The flowers are produced at the ends of the branches, in May: Their colour is white; and the petals of which they are composed are concave and large; so that, together with the numerous stamina in the center, they present a beautiful appearance. They are also remarkable for their sweet scent; and are succeeded by conical fruit, which never ripens in England; but in the places where they grow naturally, a singular beauty and oddity is added to these trees by the fruit; for the seeds are large, and lodged in cells all around the cone, When quite ripe, these are discharged from their cells; and hang each by a long narrow thread, causing thereby an uncommon and pleasing effect.

2. **Long-leaved Magnolia** will grow to be near twenty feet high. The wood of this sort is yellow, and the branches are covered with a smooth light bark. The leaves are very large, being near ten inches long; their figure is oval, spear-shaped, and all end in points. The flowers, which are produced in May, are white, and composed of twelve obtuse petals, which, together with the number of stamina, make a good show. These also are succeeded by conical fruit, which never ripens in England.

3. The wood of the **Umbrella Tree**, which grows to about twenty feet in height, is more spongy than any of the other species of Magnolia. It is called the *Umbrella Tree*, from its manner of producing the leaves; for these are exceedingly large, and so produced as to form the appearance of an umbrella. The flowers of this sort also are white, and the number of petals of which each is composed is about ten: They are suc-

ceeded by fruit of a conical figure, with many cells all round for the seeds, which never ripen in England.

All these sorts may be PROPAGATED by seeds, layers, and cuttings. By the first of these methods the best plants are raised, though it is a very tedious way, and must be followed with great patience and trouble. We receive the seeds from those parts of America where they grow naturally. These are always preserved in sand, but, nevertheless, will not always prove good. As soon as possible after they arrive, which is generally in February, they should be sown in pots about half an inch deep. The best compost for them is a fresh loamy earth, mixed with a fourth part of drift sand; and the seeds should be thinly sown in each pot. After this is done, the pots should be plunged up to the rims in the natural mould, under a warm hedge, where they may reap the benefit of the sun during the month of March and part of April; but when the rays of the sun begin to be strong and powerful, drying the mould in the pots very fast, they should be taken up and plunged again up to the rims in a shady border. By the end of May, if the seeds were good, the plants will come up; and all the summer they must be constantly attended with weeding and watering. At the approach of winter, they should be removed into the greenhouse, or placed under some cover; but in mild weather should always have the benefit of the open air and gentle showers. In March, the pots with their seedlings should be plunged into a hotbed to set them forwards. Tanners bark is what the hotbed should be composed of; and as much air as the nature of the bed will allow, should always be afforded them. Water also must be given pretty often, though in small quantities, and the glasses must be shaded in the heat of the day. After this, about June, they should be inured to the open air; watering must still be afforded them; and this is what they require during the second summer. It has been a practice to plunge the pots into a hotbed soon after the seeds are sown; but this is a very bad method, for the young plants being thereby forced, grow thin and slender, and are seldom made to live longer than the first year. The second summer's management also has usually been, to plant the seedlings in March, in little pots, and then plunge them into a hotbed: but this is also a very bad way; for these seedlings, whether raised on hotbeds or the common ground, will be small, and not of consistence sufficient to draw the juices, though the powers of vegetation are assisted by a hotbed: Thus, hardly any of them survive this early transplanting. This having been the general practice, these plants have been always thought very difficult to preserve the second year; whereas all those difficulties vanish, by observing the above-directed method; for by letting the seeds have only the natural soil, they will the first summer be formed into young plants, which, though small, will nevertheless be plants, and healthy. Thus being in the spring in their natural state, with their pores open to receive the nutritious juices, and not having suffered by being transplanted, the hotbed will so help them, that they will be pretty plants by the autumn. At the approach of winter, they must be removed again under cover, and the former assistance of a hotbed should be afforded them; and this should be repeated until the plants are grown to be a foot or more in length. The spring following, the mould should be turned out of the pots and shaken from the roots, and each plant put into a separate pot. For these, a hotbed of tanners bark should be ready, which will promote their growth, and make them healthy and fine. During the time they are in the bed, they should be shaded; and about Midsummer the pots may be taken out and placed in a shady border. The winter following, it will be proper to house them in severe frosty weather; but always observe to place them abroad in mild seasons. In March they may be turned out of the pots, the mould hanging to the roots, and planted with that in the places where they are to remain. 2. These plants may be also propagated by layers. The young shoots in the autumn are most proper for the purpose; and it is found that a gentle twist, so as just to break the bark about the joint, is a better method than any other in practice. These will sometimes strike root in one year, and sometimes you must wait more than two before you find them with any. After they have struck root, and are taken up, the best time for which is March, it is most eligible to plant each separately in a pot, and plunge them into a hotbed, as directed for the seedlings; and by the spring following they will be strong good plants for any place. 3. These plants may likewise be encreased by cuttings; by which they may be procured in plenty, if a person has the conveniency of a good stove; and without one this method should not be attempted. These cuttings should be planted in pots; and after they are set in the stove, must be duly watered and shaded: By observing these directions many of them will grow. After this, they should be brought by degrees to the open air; the winter following they should be placed under a hotbed frame, or some shelter; and in the spring planted out to remain.

These plants often retain their leaves, especially when young, all winter, or the greatest part of it, in some situation; and in such they pass for evergreens.

4. The EVERGREEN LAUREL-LEAVED MAGNOLIA. In the countries where it grows naturally, it arrives to the height and bulk of a timber tree. Those countries are adorned with woods that are chiefly composed of this plant; and indeed, a wood of so noble a tree, luxuriantly shooting, flowering, and seeding, healthy and strong, in soil and situation wholly adapted to its nature, must be a sight of which we can hardly form an adequate idea, or have a just conception of its beauty or grandeur; for the tree naturally aspires with an upright stem, and forms itself into a regular head. Many other trees do the same; but its most excellent properties consist of the superlative beauties of the leaves, flowers, and seeds. The leaves much resemble those noble leaves of the Laurel, from which it is so called, only they are larger, and of a thicker consistence: Many of them will be ten inches or more in length, and four broad, and all are firm and strong. Their upper surface is of a shining green, but their under is lighter, and often of a brownish colour. This tinge, which is not always found in all trees, is by some thought a great beauty, and by others an imperfection; so various is the taste of different people. These leaves are produced without any order on the

tree, and sit close to the branches, having no separate footstalks. The idea we can form of a tree, of seventy or eighty feet high, plentifully ornamented with such large and noble leaves, must be very great, and will induce us on their account only to endeavour to naturalize so noble a plant to our country. But let us consider their flowers. These we find large, though single, and of a pure white. They are produced at the ends of the branches, in July, and each is composed of about nine or ten large spreading petals. They have the usual properties of those that are broad and rounded at their extremity, of being narrow at the base, and their edges are a little undulated or waved. In the center of these petals are situated the numerous stamina, which the Botanist will be more curious in observing than the Gardener. But what affects all equally alike that have the sense of smelling is, their remarkable fragrance, which indeed is of so great a degree, as to perfume the air to some distance; and if one tree, when in blow, is sufficient to effect this, what conception should we form of the odours diffused in the countries where there are whole woods of this tree in full vigour and blow! The fruit is nearly of the shape and size of a large egg; but what makes it most singular and beautiful are the pendulous seeds of a fine scarlet, which being discharged from their cells, hang by long threads, and have an effect both striking and uncommon.

Rules have been given above for PROPAGATING deciduous Magnolias: the same rules observed, whether for seeds, layers, or cuttings, will raise plenty of this sort; neither need any thing be added, except hinting to the Gardener, that this is more tender than the other sorts, and that from thence he should learn not to be over-hasty in committing these plants to the winter's cold and planting them finally out. Snow is peculiarly injurious to them while young; so that, at the approach of such weather, they must be particularly covered; and if snow should happen to fall unawares, it should be carefully cleared off the leaves and stems. When these plants are set abroad to remain, if the place is not exceedingly well sheltered, it will be proper to have a shed at hand, which the

Gardener may put together, to screen them from the severe northern frosts, and the black easterly winds, from which this shrub is most likely to suffer damage; and these frosty winds are the most destructive to it when they come early in the winter, while the shoots are rather tender; for then they are often destroyed, and the tree rendered unsightly for some time, though it will shoot out again. When this shrub is to be encreased by layers, it will be necessary, after the operation is performed, to make a hedge of reeds, or something, at a little distance round it, to keep off the strong winds, and prevent them from blowing the layers out of the ground; for without some guard this will be in danger of being done; since the leaves being very large and strong, the wind must have great power over them.

MEDICAGO.

LINNEAN Class and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being connected at the base in two divisions. There are twenty-four SPECIES; one of which, only, is admissible into our collection; the rest being herbaceous plants.

MEDICA'GO *Arbo'rea:* The TREE LUCERN, or TREE MEDICK, or MOON TREFOIL; *an evergreen shrub;* native of Italy, Crete, and the islands of the Archipelago.

The TREE LUCERNE will grow to be six or seven feet high, and divides without any order into many branches, which are covered with a gray bark. There is a delicacy in the young shoots beyond what is found in most trees; for they are white and silvery, and at the same time covered with the finest down. These young shoots are plentifully ornamented with leaves, many of which come out from a bud. They are trifoliate, and grow on long slender footstalks. One of the folioles is cuneiform, or shaped like a wedge; the others grow out more into a lanceolate figure, have also a whitish look, and are downy, though not to so great a degree as the young twigs on which they grow. They have a large midrib, which contracts the borders in the evening, and this alters their position of sides on the alteration of weather. The flowers are produced from the sides of the branches, in clusters, on long footstalks. Each of these clusters will be composed of ten or twelve flowers, which are of a beautiful yellow. They are of the butterfly kind; and are succeeded by moon shaped pods, that ripen their seeds very well. One or other of these trees is to be found in blow almost at all times. The beginning of the blow is generally said to be in April or May; and indeed then we may expect to see the flowers largest and in the greatest perfection; but the flowers of these trees may be seen in July, August, and September; and in green-houses have been known to blow all winter; which makes the tree more valuable to those who are desirous of seeing flowers in unusual months.

This shrub is by many supposed to be the true *Cytisus* of Virgil. It grows plentifully in Italy, in the islands of the Archipelago, and many other parts, where it is esteemed excellent fodder for cattle. "For this purpose, continues HANBURY, the raising of it has been recommended in England; but there seems no probability of such a scheme being brought to bear here; neither is it any way necessary to give ourselves the trouble to try experiments of this kind, as, should it even succeed to our utmost wishes, we have many sorts of fodder that will exceed it in quantity and quality, without any proportion to the extraordinary expence which must attend the raising any quantity of these shrubs, to cut for that use. The flowers, leaves, and top shoots have, however, a fine pease-like taste, which is what, I make no doubt, most cattle would be fond of, and of which the inhabitants of some countries where it grows naturally reap the advantage; for the goats that feed on it yield a greater quantity as well as a more excellent kind of milk, from which good cheese is at length obtained, where these creatures have plenty of these shrubs to brouze upon.

"In our wilderness quarters we must give this tree a very dry soil and a well sheltered situation; for with us it is rather a tender shrub, and has been frequently treated as a greenhouse plant; and this is another argument against any attempt to raise these shrubs for fodder in England: They are too tender to bear our severe winters without shelter; and should we proceed in raising sixty or seventy acres, a thorough frosty winter would destroy the greatest part of them; or, if the winter should not be so severe as totally to kill them, yet their end shoots would be so nipped and damaged, that it would be late in the summer before they would shoot out and recover this injury, and consequently small crops must be expected."

This plant is easily PROPAGATED by seeds or cuttings. 1. The seeds should be sown in the spring, a quarter or half an inch deep, in beds of fine light garden mould. After they are come up, the usual care of weeding must be afforded them; and if they are shaded and now and then watered in hot weather, it will be so much the better. The beds must be hooped against winter, and plenty of mats must be ready to cover the plants when the frost comes on; and if this should be very severe, their covering should be encreased, or there will be danger of loosing them all. In the spring the strongest may be drawn out, and planted in pots to be housed for a winter or two, until they are got strong; but where a quantity is wanted, and there is no such conveniency, it may be proper to let them remain in the seed bed another winter, for the conveniency of being covered in bad weather; and then in the spring they may be planted out in the nursery, in lines two feet asunder, and at one foot distance. This nursery should be in a well sheltered warm place, and they will be ready for transplanting whenever wanted. 2. These plants may be raised by cuttings. If a few only are wanted for ornamenting a shrubery, the best way will be to plant these in pots, and set them up to the rims in a shady place, that they may have the conveniency of being housed in winter. When a quantity is wanted, they must take the chance of wind and weather, and the most we can then do is to plant them in fine light soil in a well sheltered place. The latter end of March is the best time for the purpose; they will

England, to this may be added, the desire of preserving those few a person has obtained. But notwithstanding the Bead Tree's being looked upon as a greenhouse plant, some gardeners have ventured to set them abroad against warm walls, where they have stood the winter, and flourished exceedingly well; others have planted them out in well sheltered places only, where they have flourished and stood the brunt of many winters. What inclines me to introduce the Melia amongst our hardy trees is, that I have planted it in an open cold expanse, in a naturally damp and moist soil, where it has flourished for more than seven years, and displayed its beautiful foliage every summer, to the great pleasure of all beholders. This treatment and practice, howver, must be used with caution; and whoever ventures to plant them abroad must have a dry soil, as well as a warm and well sheltered situation, and then nothing but our hardest frosts will deprive the owner of these treasures. But, were they more tender, and if a person has no greenhouse, it will be worth while to venture the planting a few abroad, though there should be little chance of his keeping them longer than two or three winters, as they are scarce plants with us, and the leaves, the only beauties the tree can afford in that time, are compounded in such a manner as to afford admiration and pleasure." HANBURY.

PROPAGATION. Care and trouble must be used before we can raise these plants to be of sufficient strength and hardiness to defend themselves, when planted finally out. They are all to be raised from seeds; and these are to be procured from the places where they commonly grow, which is in most of the Catholic countries. These seeds must be sown in pots, filled with light sandy earth, half an inch deep, the end of March. This done, the pots should be plunged into a bark bed. which will cause them to come up. When the plants appear, they must have plenty of air and water; and the open air must be afforded them pretty soon in the summer, that they may be hardened before winter. After they are taken out of the beds, they should be set in a shady place, and every other day watered till the autumn; and at the approach of winter, they should be removed into the greenhouse, with the hardiest of those plants. In April following, the plants should be taken out of the pots, and each planted in a separate small pot: and after this is done, they should have the benefit of the bark bed as before, to set them a-growing. Care must be taken to give them sufficient air, and not to draw them too much; and after they are well entered upon a growing state, they must be hardened to the open air as soon as possible, and the pots taken out, and plunged up to the rims in a shady border, which will prevent the mould in the pots drying too much. They will require little watering, if this method be used, during the summer; and at the approach of winter, they must be removed into the greenhouse, as before, or placed under a hotbed frame, or some shelter. The next spring they must be set out with other greenhouse plants, and managed accordingly, and removed into the house again with them. Every other year, they should be shifted out of their pots, with the earth to their roots, and planted in larger; and by thus treating them as greenhouse plants, and letting them have larger pots as they encrease in size, till they are six or eight years old, they will arrive to be good strong trees. Then in April, having made choice of the driest, warmest, and best sheltered situation, there they may be planted, taking them out of the pots with all their mould; which if done with care, they will never droop on being removed.

MENISPERMUM.

LINNEAN Class and Order, *Dioecia Dodecandria:* Male flowers containing twelve stamina, and female flowers containing two pistils, are situated upon distinct plants. There are eight SPECIES; three of them as follow.

1. MENISPE'RMUM *Canade'nse:* The CANADA MOONSEED; *a ligneous climber:* native of Canada and Virginia.

2. MENISPE'RMUM *Virgi'nicum:* The VIRGINIA

Moonseed; *a ligneous climber;* native of the sea shore of Virgina and Carolina.

3. Menispe'rmum; *Caroli'num;* The Carolina Moonseed; *an herbaceous climber;* native of Carolina.

1. The Canada Moonseed will twine round trees to the height of fifteen or sixteen feet; and if there be no trees near for it to aspire by, its almost numberless branches will twist and run one among another, so as to form a thick close-set bush. These twining stalks are covered with a smooth green bark, though in some places they are often reddish, and in winter often of a brown colour. The leaves are very large, and stand singly upon long green footstalks, which also have a twining property, and assist the plant to climb. These leaves have their upper surface smooth, and of a strong green colour, but are hoary underneath. They are what are called peltated leaves: The footstalk is not near the middle of the leaves, but within about a quarter of an inch of the base, and from thence it branches into several veins unto the extremity. These peltated leaves are of a roundish figure in the whole, though they are angular, and being large, and of a good green, make it a valuable climber. The flowers are produced in July, from the sides of the stalks. They grow in bunches, and are of a greenish colour. They are succeeded by seeds, which often ripen well here.

2. The Virginia Moonseed differs very little from the other, except in the shape of the leaves; for it has the same kind of twining stalks, produced in great plenty, and the flowers and fructification are the same; so that nothing more need be observed of this, only that the leaves are often heart-shaped, and many of them have lobes like those of the common Ivy.

3. The Carolina Moonseed is an herbaceous climber, and will by the assistance of trees, rise to be ten or twelve feet high. The twining stalks are garnished with heart-shaped leaves, which do not divide into lobes like the others. These leaves, which are of a good strong green colour, have their under surface hairy, and are much smaller than either of the other sorts; the species itself being of all the least valuable, as it is scarcely ever known to produce flowers here.

All these sorts propagate themselves very fast.

1. If they are planted in a light soil, their roots will so spread and multiply the shoots, that in a few years after planting, each of them being wholly taken up, they may be parted, often into some scores of plants, which will be fit to set out, the weakest in the nursery to gain strength, and the strongest where they are to remain. Any time from October to March will do for taking off the suckers or parting the roots. 2. The young shoots also, being covered with mould, will grow, and be good plants in one year. 3. They may be likewise raised by seeds; for if these are sown in the spring, in a bed of light earth, half an inch deep, they will come up, and require no other trouble than weeding until they are finally planted out, which may be two years after their appearance, and which may be done very well from the seed bed, without previous planting in the nursery.

MESPILUS.

LINNEAN Class and Order, *Icosandria Pentagynia*: Each flower contains about twenty males and five females. There are nine SPECIES; seven of which are here treated of:

1. ME'SPILUS *Germa'nica*: The GERMAN MEDLAR, or DUTCH MEDLAR; *a deciduous tree;* native of the South of Europe.

2. ME'SPILUS *Arbutifo'lia*: The ARBUTUS-LEAVED MEDLAR, or the VIRGINIA WILD SERVICE TREE; *a deciduous shrub;* native of Virginia.

3. ME'SPILUS *Amela'nchier*: The AMELANCHIER; *a deciduous srub;* native of Austria, France, and Italy.

4. ME'SPILUS *Canade'nsis*: The CANADA MEDLAR, or SNOWY MESPILUS; *a deciduous shrub;* native of Canada and Virginia.

5. ME'SPILUS *Cotonea'ster*: The DWARF QUINCE; *a deciduous shrub;* native of the Pyrenees, Ararat, and many of the cold parts of Europe.

6. ME'SPILUS *Chamæ-Me'spilus*: The BASTARD

QUINCE; *a deciduous shrub;* native of the Austrian and Pyrenean Mountains.

7. ME'SPILUS *Pyraca'ntha:* The PYRACANTHA, or EVERGREEN THORN; *an evergreen shrub or climber;* native of Italy and the South of France.

1. The GERMAN MEDLAR in some situations grows to be a moderately large tree. It grows irregularly, and the branches are frequently crooked. The leaves are spear-shaped, large, entire, downy underneath, and grow on very short channelled footstalks. The flowers, which grow singly from the sides of the branches, are very large, and of a white colour. They come out the end of May, and are succeeded by that well known fruit called *The Medlar.*

The *Varieties* of this species are, *The Pear-fruited Medlar,* and *The Nottingham Medlar.* These are plants of more upright growth than the Dutch Medlar. Their leaves are narrower, and their flowers and fruit smaller.

2. ARBUTUS-LEAVED MEDLAR. This is frequently called Virginia Wild Service Tree with an Arbutus Leaf. It is a shrub about six feet high, frequently sending forth many suckers from the root, and branches from the sides of the plant. The leaves are spear-shaped, downy underneath, and indented. They grow alternately on very short footstalks. Their upper surface is a fine green colour, though white below; and they die to a purple colour in the autumn. The flowers are produced in bunches from the ends and sides of the branches: They are small, white, come out in May, and are succeeded by a dark brown fruit, like the Common Haw, which will sometimes be ripe in the autumn.

3. AMELANCHIER. The stalks of this species are slender, branching a little, and grow to about four feet high. The young branches are of a reddish purple colour, and the whole plant is altogether destitue of thorns. The leaves are oval and serrated, about three quarters of an inch long, half an inch broad, green on their upper surface, and woolly underneath. The flowers are produced in bunches from the ends of the branches: Their colour is white; and they are succeeded by small black fruit, of a sweetish taste, which will be often ripe in the autumn. This is a beautiful

shrub, and in different parts goes by the various names of *The Dwarf Black fruited Medlar*, *The New England Quince*, *Vitis Idæa*, *&c.* The young shoots which support the flowers are woolly underneath; but this by degrees wears off, and they soon become of a purple colour, which remains all winter.

4. CANADA MEDLAR. This shrub, which rises to about five feet high, is free from thorns, and divides into a few branches, which are smooth, and of a purplish colour. The leaves are oval, oblong, smooth, slightly serrated, and grow on long slender footstalks. The flowers are white, and terminate the branches in small bunches: They come out in May; and are succeeded by a purplish fruit, hardly so large as the common Haw.

5. DWARF QUINCE grows to about four or five feet high. The branches are few, smooth, and of a reddish purple colour. The leaves are oval, entire, and grow on very short footstalks. The flowers are produced two or three together, from the sides of the branches, without any footstalks. They are small, of a purplish colour, come out in May, and are succeeded by round fruit, of a bright red colour when ripe, in the autumn.

6. BASTARD QUINCE. This species grows to about four or five feet high. The branches are few, smooth, slender, and covered with a purplish bark. The leaves are oval, smooth, serrated, of a yellowish green, and grow on pretty long footstalks. The flowers are produced in small heads, from the wings of the stalks; and between them are long narrow bracteæ, which fall off before the flowers decay. Both flowers and bracteæ are of a purplish colour: The fruit is small, and of a red colour when ripe.

All these sorts are to be PROPAGATED from the seeds, from layers, and by budding them upon Hawthorn stocks. 1. The seeds should be sown in the autumn, soon after they are ripe, in a bed of good earth, in a moist part of the garden. They usually lie two years before they make their appearance; during which time the bed must be kept clean from weeds. When the plants come up, they must be frequently watered, if dry weather should happen; and this should occasionally be repeated all the summer. Weeds must be eradicated as they arise; and in the autumn, winter, or spring, the strongest plants may be drawn out, and set in the nursery ground, a foot asunder, in rows two feet distant from each other; whilst the others may remain in the seed beds a year longer, to gain strength. In the nursery the Medlars should be trained for standards, if designed for fruit; or they may be headed to any height if for other purposes, while the lower kinds will require no other management than keeping them clean from weeds, and digging the ground between the rows in winter. 2. These plants may be also raised by layers, especially the five last sorts. The young branches should be laid early in the autumn; and by the autumn following many of them will have struck root, when they should be taken up, and planted in the nursery ground, like the seedlings, to remain there for a year or two, before they are finally set out. 3. But the most expeditious, and by far the best way of raising these sorts is, by budding them upon stocks of the White Thorn. The Haws to raise the stocks should be gathered from such trees as are largest, shoot freest, and have the largest leaves and fewest thorns. When the stocks are one year old, they should be set in the nursery at the before-mentioned distance. By the end of July, many of them will be ready for working; when they should be budded in the usual way, and they will easily take. Seldom any other method than this is practised for raising Medlars; and the other sorts, when growing on so firm a basis as the White Thorn, will be larger, have a better look, and be more fertile in flowers and fruit.

7. The Pyracantha, or Evergreen Thorn, has been cheifly used to ornament or hide the ends of houses, barns, stables, or other buildings that break in upon the view; and for this purpose no plant is better adapted, as by its evergreen leaves, closely set, it will not only keep from sight whatever cannot regale that sense, but will be to the highest degree entertaining by the profusion of berries it will produce, and which will be in full glow all winter. But though the hiding as well as ornamenting of walls, &c. has beeen the chief use for this tree, it is with very good reason planted as an evergreen in shrubery quarters, where, nothwithstanding

its branches against walls, &c. are very flexible, it will become stronger and more woody, and will diffuse its leafy branches in an agreeable manner. The branches will be terminated with its fine fruit, which will glow in the quarters all winter, if they are not eaten by the birds; so that the tree before us is proper for any place. A farther account of this shrub is almost needless, as it is well known; there being few towns which have not a house or two whose front is ornamented with them, being trained up to a great height; but when planted singly in quarters, though their stems naturally become stronger, they seldom grow higher than twelve or fourteen feet; and they will spread abroad their slender branches, and will often have a bushy, though not unpleasing form. These branches are covered with a smooth bark, which is of a dark greenish brown colour, and often spotted with grayish spots; and they are often possessed of thorns, which, though not numerous, are sharp and strong. The leaves are spear-shaped, oval, and their edges are crenated. Their upper surface is smooth, and of a fine shining green; their under is paler; and they are produced in much plenty all over the shrub. The flowers are produced in bunches, like those of the common Hawthorn; though they are small, and not of so pure a white. They are often later before they are produced; and are succeeded by those large delightful bunches of berries, which are of a fiery red, and which are as ornamental in the winter as any that are produced on trees of the berry-bearing tribe.

This plant is easily PROPAGATED by the berries, or from layers. 1. The berries should be sown in any common garden mould made fine, an inch deep; and these will remain two years before they appear: though if the berries are old ones (for they will often remain on the tree two years) they will frequently come up the succeeding spring. After the plants have stood one or two years in the seed bed, in the spring they should be planted out in the nursery, at small distances; and in about two years more they will be good plants, fit for any place. 2. They are easily propagated by layers; and this business should be performed in the autumn, on the young shoots. A gentle twist may be given them: though, if they are only laid down, and covered with earth, they will strike root by the next autumn; nay, continues HANBURY, "I have known that, by some mould being accidentally thrown on a branch which was near the ground, roots have shot from almost every joint." These layers should be taken off any time in the winter; the strongest will fit be for immediate use, while the weaker may be set in the nursery, like the seedlings, and in a very little time they will grow to be good plants. It dislikes a very moist situation.

MORUS.

LINNEAN Class and Order, *Monoecia Tetrandria*: Male flowers containing four stamina, and female flowers containing two pistils, upon the same plant; the males flowers being collected in a catkin. There are seven SPECIES; four of which are proper for our collection:

1. MO'RUS *A'lba*: The WHITE MULBERRY, or the SILKWORM MULBERRY; *a deciduous tree;* native of China, and cultivated almost universally for the feeding of silkworms.

2. MO'RUS *Ni'gra*: The BLACK MULBERRY, or the COMMON GARDEN MULBERRY; *a deciduous tree;* native of Persia, and the maritime parts of Italy.

3. MO'RUS *Papyri'fera*: the PAPER MULBERRY; *a low deciduous tree;* native of Japan.

4. MO'RUS *Ru'bra*: The VIRGINIA MULBERRY; *a low deciduous tree;* native of Virginia.

1. The WHITE or SILKWORM MULBERRY will grow to a large size: Its leaves are of a clear light green; and open considerably earlier in the spring than those of the other species of Mulberry: Its fruit is also paler coloured than those of the other sorts, which makes this take the name of the White Mulberry. "This tree (says HANBURY) possesses the peculiar property of breeding no vermin either growing or cut down;

neither does it harbour any sort of caterpillar, the Silkworm only excepted, whose food is its leaves. The Mulberry tree was very earnestly recommended by King James to be planted in great quantities to feed these worms, in order to have silk of our own working: and indeed, if we consider what vast sums the produce of silk brings in to other States, we might find an undertaking of this nature worthy of a princely care and assistance." The Mulberry delights most in a light dry soil; but there is very little land in this kingdom, generally speaking, which might not be planted with these trees, and probably to great national advantage. This being as it may, it is sufficiently *ornamental* to be admitted into a large collection: And, besides the *uses* of its leaves to the Silkworm, EVELYN and HANBURY recommend it very strongly as a forest or timber tree, and enumerate some of the uses of its wood; none of them, however, sufficiently striking to induce us to recommended it to the planter's notice merely as a timber tree.

2. The BLACK or GARDEN MULBERRY is principally cultivated for the fruit; and in ornamental plantations a few of them will be sufficient, to make the collection general, as well as to be ready at all seasons for the notice and observation of the Botanist.

There is a *Variety* of it, with jagged leaves, which makes it esteemed on that account; but the fruit is smaller than that of the common sort.

3. The PAPER MULBERRY is so called, because the inhabitants where the trees grow, naturally, make paper of the bark. It will grow to the height of about thirty feet; and exhibits its fine large leaves of different shapes, many of them being divided into several lobes, whilst others again are entire. They are of a fine strong green colour, though the under surface is paler than the upper. The flowers, as has been observed, are male and female; and the females are succeeded by small black fruit. It is the bark of the young shoots of which the paper is made; and for this use it is cultivated much in China, as well as in Japan, where large plantations are raised. The plants are headed to within about a foot of the ground; and every year the crop of the summer's shoots is taken.

4. The VIRGINIA MULBERRY TREE will grow to be thirty or more feet high. It sends forth many large branches; and the bark of the young shoots is of a blackish colour. The leaves are larger than the Common Mulberry, and rougher; though in other respects they somewhat resemble them. It produces plenty of catkins, in shape like those of the Birch tree; and the female flowers are succeeded by a dark reddish fruit. This is a very scarce plant at present; and is coveted by none but those who are desirous of making their collection general.

These several species of Mulberry may be PROPAGATED from seeds, by layers, and from cuttings. 1. Where the seeds can be procured, it is the most expeditious way of raising great quantities; and whoever has a correspondence in the South of France, or in Italy, may through that channel obtain them. Having the seeds ready, let a fine warm border of rich mellow earth be prepared, and let this border be hooped, in order to support mats to defend the young plants, when they appear, from frosts. If no such border can be easily had, it will be proper to make a gentle hotbed, and cover it with fat mould: This also must be hooped, as the border. Then sow the seeds in little drills, about a quarter of an inch deep. The middle of March is the best time for this work; and when the young plants appear, which will be in about six weeks, they must be constantly covered with the mats in the night if any appearance of frosts presents itself, as there often is at that season. During the summer they should be kept clear from weeds, and covered from the extreme heat of the sun while the hot months continue. Whenever any cloudy or rainy weather approaches, the mats should be always taken off, that the plants may enjoy the benefit of it. By thus carefully nursing the beds, keeping them clear from weeds, watering the plants in dry seasons, covering them from the parching sun, and uncovering them again in the night, cloudy or rainy weather, the plants by autumn will be got pretty strong; though not so strong as to be left to themselves. The following winter they will require some care. When the frosts approach, they must be carefully covered with the mats, as in the spring; for without this protection, many of them would be destroyed, and the greatest part killed, at least down to the ground. In this bed they may stand two years, when they will be strong enough to plant out in the nursery. The ground for this purpose being double dug, the young plants should be set in rows, at two feet and a half distance, and one foot and a half asunder in the rows. Here they may remain till they are of a sufficient size to be finally planted out. 2. Another method of propagating this tree is by layers. Whoever has not the conveniency of obtaining the seeds, must procure a number of plants to be planted for stools. The ground on which these stools are to stand should be double dug, and the trees may be planted for this purpose two yards asunder. The size of the ground, and the quantity of trees for the stools, must be proportioned according to the number of plants wanted; though the reader should observe, that a few stools will soon produce many layers, as they throw out plenty of young branches, when the head is taken off. Having a sufficient quantity of stools that have shot forth young wood for layering, in the beginning of winter perform this business as follows: Let the earth be excavated around each stool, and let the preceding summer shoot be slit at a joint, and laid therein; a peg would be proper, to keep them from being torn up, and the fine mould should fill the interstices; the ground must be levelled, and the young twigs cut down to one eye above the surface, that it may just appear above the ground. Such is the method of layering this tree; and whoever performs the operation in this manner, will find in the autumn following, that the plants will have all taken good root, and made a considerable shoot in the stem. These plants will be now ready for the nursery ground, in which they should be planted and managed in the same way as the seedlings. The stools, the second year after, will have exhibited a fresh crop of young wood for layering: And thus may this operation be performed every second year, till the desired quantity is raised. 3. By *cuttings* also all the sorts may be propagated, and this may be done two ways: By *cuttings planted in autumn*. These should be strong shoots of the last year's wood; and if the tree to be encreased is not in so flourishing a state as to make such shoots, it should be headed the year before, and you will have cuttings proper for your purpose. The strongest shoots are the best; and October is the best month for the business. They should be a foot and a half long, and must be planted a foot deep, in a shady well sheltered place, and a moist soil well worked and fine: By this method many good plants may be raised. These trees may also be encreased by *cuttings planted in the summer*. The latter end of June, or the beginning of July, is a proper time for the work, and the management must be as follows: Having a sufficient number of pots ready, the cuttings, or rather slips, from the trees should be gathered, and planted in these pots, in any sort of common garden mould made fine. After this, they should have a good watering, and the pots be plunged up to their rims in the stove. Here, if water and shade be constantly afforded them, they will strike root and become good plants. It may be proper to observe farther in this place, that cuttings planted in pots in March, and managed this way, will readily grow. After they have struck root, they may be hardened by degrees to the open air. They should remain under cover in the pots all winter; for they will be rather tender at first, by being so nicely nursed; but in the spring, when all danger of frost is over, they may be turned out, with the mould, either in nursery lines at a foot distance and two feet asunder in the rows, or else in the places where they are designed to remain; for they will be hardy enough, after growing openly this summer, to be in little danger of suffering by almost any weather.

MYRICA.

LINNEAN Class and Order, *Dioecia Tetrandria*: Male flowers containing four stamina, and female flowers containing two pistils, upon distinct plants. There are six SPECIES; two of which are of a fragrant quality, and may be admitted into shrubery quarters.

1. MYRI'CA *Ceri'fera:* The CANDLEBERRY MYRTLE, or WAX BEARING MYRICK; *a deciduous shrub;* native of Carolina, Virginia, and Pennsylvania.

2. MYRI'CA *Ga'le:* The GALE, or DUTCH MYRTLE; *a low deciduous shrub;* native of heathy bogs in many parts of England, and also of most of the northern parts of Europe.

1. CANDLEBERRY MYRTLE is a shrub about five feet in growth. Many slender branches are produced from the stalk: They are tough, smooth, and of a yellowish brown, having the older spotted with gray spots. The leaves grow irregularly on them all round; sometimes by pairs, sometimes alternately, but generally at unequal distances. They are of a lanceolated figure; and some are serrated at the top, whilst others have their edges wholly entire. They stand on very short footstalks, having their upper surface smooth, and of a shining green colour, whilst their under is of a more dusky hue. The branches of the old plants shed their leaves in the autumn; but the young plants, raised from seeds, retain them the greatest part of the winter; so as during that season to have the appearance of an evergreen. But this beauty will not be lasting; for they shed their leaves proportionally earlier as the plants get older. There are both male and female trees of this sort. The flowers are small, of a whitish colour, and make no figure; neither does the fruit that succeeds the female, which is a small, dry, blue berry, though produced in clusters, make any show: so that it is from the leaves this tree receives its beauty and value; for these being bruised, as well as the bark of the young shoots, emit the most refreshing and delightful fragrance, that is exceeded by no Myrtle, or any other aromatic shrub.

There is a *Variety* of this species, of lower growth, with shorter but broader leaves, and of equal fragrance. This grows commonly in Carolina; where the inhabitants collect, from its berries, a wax, of which they make candles, and which occasions its being called the *Candleberry Tree.* It delights in a moistish soil,—will grow in a very moist one.

2. The **Gale**, or **Sweet Gale**, is a shrub of about the same growth with the other. The branches are tough and slender, and covered with a smooth yellowish brown bark. The leaves are of the same figure with the other, though not so large: They are placed in the same irregular manner on the branches; and when bruised, like them, emit a delightful and refreshing scent. The flowers will appear in June, and the berries, which succeed them in clusters, make no figure to any except a Botanist; so that where that science has no share in view, it is on account of its fragrance that it is propagated. This sort grows wild upon bogs, in many parts, particularly the northern parts of England; so that when it is designed to be in the shrubery, the moistest parts must be assigned it.

Both these sorts may be **propagated** by seeds or layers. 1. The seeds of the Candleberry Myrtle, and the Spleenwort-leaved Gale, we receive from abroad; those of the Sweet Gale, from the bogs where they grow in England. The best way is to sow them in boxes of earth from a rich pasture, well broken and fine. They should be sown about half an inch deep; and when the hot weather comes on, should be set in the shade. They will often remain until the second year before they come up, especially those seeds that come from abroad. If the boxes are set in the shade, and the plants come up, they will require no other trouble the first summer than keeping clean from weeds; in winter they should be removed to a warm hedge or wall, where they may enjoy the benefit of the sun. In the following spring they will come up in plenty. In the beginning of May they should resume their shady situation; and this summer they will require no other trouble than weeding and watering in dry weather. In the winter they should be removed into a well sheltered place; and this may be repeated two years; when, in the spring, they should be taken out of the boxes, and planted in the nursery, at about a foot asunder. 2. These sorts may be also easily propagated by layers; for this operation being performed on the young wood in the autumn, will occasion them to shoot good roots by the autumn following;

many of which will be good plants, fit for any place. 3. These plants may likewise be encreased by suckers; for many of them often throw them out in vast plenty; so that these being taken out, the strongest and best rooted may be finally set out; whilst the weaker, and those with less root, may be planted in the nursery.

NYSSA.

LINNEAN Class and Order, *Polygamia Dioecia:* Male flowers containing ten stamina, and hermaphrodite flowers containing five males and one female each, upon distinct plants. There is only one SPECIES:

NY'SSA *Aqua'tica:* The TU'PELO TREE; *a deciduous tree or shrub;* native of watery places in America.

The TUPELO comprehends two *Varieties:*

The Entire-leaved Tupelo.
The Serrated-leaved Tupelo.

The *Entire-leaved Tupelo Tree,* in its native country, will grow to be near twenty feet high; with us, its size will vary according to the nature of the soil or situation. In a moist rich earth, well sheltered, it will bid fair for twenty feet; in others, that are less so, it will make slower progress, and will in the end be proportionally lower. The branches are not very numerous; and it rises with a regular trunk, at the top of which they chiefly grow. The leaves are of a lanceolated figure, and of a fine light green colour. They end in acute points, and are very ornamental, of a thickish consistence, soft, grow alternately on pretty long footstalks, and often retain their verdure late in the autumn. The flowers, which are not very ornamental, are produced from the sides of the branches, growing sometimes singly, sometimes many together, on a footstalk. They are of a greenish colour; and, in the countries where they naturally grow, are succeeded by oval drupes, inclosing oval, acute, furrowed nuts. In England, they seldom produce fruit.

The Serrated-leaved Tupelo Tree grows usually to be near thirty feet high, and divides into branches near the top like the other. The leaves are oblong, pointed, of a light green colour, and come out without order on long footstalks. The flowers come out from the wings of the leaves, on long footstalks. They are small, of a greenish colour; and are succeeded by oval drupes, containing sharp-pointed nuts, about the size of a French Olive.

The PROPAGATION of these sorts is from seeds, which we receive from America. As soon as they arrive, they should be sown in large pots of light sandy earth, one inch deep. The Gardener (who must not expect to see any plants come up the first spring), after this work is done, should plunge his pots up to their rims in the natural ground; and if it be a moistish place, it will be the better. Weeding must be observed all summer; and a few furze bushes ought to be pricked round the pots in November, which will prevent the ground from freezing, and forward the coming up of the seeds. In the next spring the pots should be plunged into a hotbed, and after that the seeds will soon come up. As much air as possible, and watering, should be afforded them; and they must be hardened soon, to be set out. The pots should be then plunged to their rims again in the natural mould; where they may remain until October. Watering must be given them, and they should also be shaded in the heat of the day. In October they should be housed, with other greenhouse plants, or else set under a hotbed frame, or some other cover, all winter. The third spring they should be taken out of the larger pots, and each planted in a smaller, in which their growth may be assisted by a gentle heat in a bed; but if they are planted up to the rims in a moistish place, and shaded in dry weather, they will grow very well. Though by this time they may have become hardy, yet it will be proper to shelter them the winter following in bad weather. They will require little more care during their stay in the pots, which may be either two, three, or more years, if they are large enough;

when in some spring they may be turned out, with the mould, into the places where they are to remain, which ought always to be moist and well sheltered.

ONONIS.

Linnean Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being divided at the base into two divisions. There are twenty-nine Species; one of which, being of a shrubby nature, is proper for our purpose:

Ono'nis *Frutico'sa*: The Shrubby Ononis, or Purple Shrubby Restharrow; *a low deciduous shrub*; native of the Alps and other mountainous parts of Europe.

The Shrubby Ononis, or Restharrow, is a flowering shrub of about a yard in growth. The branches are numerous, slender, and covered with a purplish brown bark, having no spines. The leaves are trifoliate, grow irregularly on the branches, sit close, are narrow, spear-shaped, and their edges are serrated. The flowers come out in panicles from the ends of the branches: They are of the papilionaceous kind, and their general characters will indicate their structure. They stand on long foot-stalks, usually three on one. They are large, red, appear in May, and are succeeded by short turgid pods, which will have ripe seeds by July or August.

This sort may be propagated by the seeds. Common garden mould of almost any soil, made fine, will do for the purpose. The beds should be made and the seeds sown in March, and covered about half an inch deep. In May the plants will appear; and all the summer they must be weeded, and duly watered in dry weather. In the spring they should be taken out of the seed bed, and planted in the nursery, a foot asunder, where they may stand a year or two, and then be planted out for good.

As the seeds of this sort ripen exceedingly well with us, a few may be sown in different parts of the garden, and sticks placed for a direction. Where there are too many come up to grow together, they may be drawn, and transplanted for other places, or thrown away, if plenty of seeds can always be had; and thus may these plants be raised in their proper places, without the trouble of removing.

PASSIFLORA.

Linnean Class and Order, *Gynandria Pentandria:* Each flower contains five males and three females; the males and females growing together at the base. There are twenty-eight **Species**; one of which is proper for our collection:

Passiflo'ra *Cæru'lea:* The **Palmated Passion Flower**, or the **Common Passion Flower**; *a ligneous climber;* native of the Brazils.

The **Passion Flower** will climb to a prodigious height; **Miller** says, "to forty feet, with stalks almost as large as a man's arm;" and adds, that it will make shoots of twelve or fifteen feet long in one summer. The leaves are palmated, being shaped like the hand; each is composed of five folioles, the middle one of which is, like the fingers of the hand, longer, and the rest are shorter in the same proportion. These folioles are smooth, and have their edges free from serratures, and all together form a fine leaf. The leaves grow from the joints, on short footstalks, from whence also the claspers come out. From the joints, also, the flowers are produced, in July, August, and September. They are well known; and in some countries serve as monitors to the religious, as shewing the instruments of our Blessed Saviour's Passion; for they bring in the leaves of some of the sorts to represent some part of it, and the contorted cirrhi for the *flagella* with which he was scourged.

This extraordinary plant is very easily **PROPAGATED**; for it takes freely either by cuttings, layers, or seeds. 1. By cuttings. These should be planted in a moist rich soil, at the beginning of March. The beds should be immediately hooped, and every day, during the drying March winds and sun, should be covered with mats; and all that time they should have frequent waterings in the evening. In moist, hazy, or cloudy weather, they should be constantly uncovered; and with this management many of them will strike root. If, through the heat of summer, the mats be applied, and evening waterings continued, the plants being thus kept cool and moist, will shoot to be good ones by the autumn. During the winter, the mats must be applied in frosty weather; and in the spring they may be set out to stand. 2. Good plants are obtained by layers; for these being laid in the ground in the spring, will have struck root, and be good plants for removing the spring following. 3. By seeds. These should be sown in pots filled with fine sandy soil, from a rich meadow; and these plunged up to the rims in a shady border In these pots they will readily come up; and at the approach of winter should be removed into the greenhouse, or set under a hotbed frame. In the spring following they may resume their old place; and the spring after that may be set out for good.

The after management will be, if planted to climb up trees in warm well sheltered places, to take away the dead shoots in the spring that have been killed by the frosts; for these will not only appear unsightly, but by shortening the branches, it will cause them to shoot stronger and flower better. If planted against high walls, they must be constantly nailed up as they shoot, and in the spring following the branches must be shortened, and the others taken away. If they be reduced to about a yard or four feet in length, and all weak shoots cut out, you will be pretty sure of having plenty of good bloom the summer after. This sort is succeeded by a large, oval, yellow fruit, which also looks well. As this plant is rather tender, and requires mats to be nailed before it in very hard frost, these mats must be always taken off immediately on the alteration of weather; for otherwise the stems will grow mouldy, and be destroyed that way. And as it is usual to lay straw, dung, &c. about the stems to prevent the frost penetrating the ground, this dung, &c. must not be laid up to the stem so as to touch it, but all around it; for if it is laid up to the stem, the bark will be destroyed, and the tree killed, and also very little chance remain of the root's throwing out fresh shoots, as it often does when the plant is killed down to the ground.

PERIPLOCA.

LINNEAN Class and Order, *Pentandria Digynia*: Each flower contains five males and two females. There are five SPECIES; one of which is sufficiently hardy for this climate.

PERI'PLOCA *Græca:* The PERIPLOCA, or VIRGINIA SILK, or CLIMBING DOG'S BANE; *a ligneous climber;* native of Syria.

The PERIPLOCA is a fine climbing plant, that will wind itself with its ligneous branches about whatever tree, hedge, pale, or pole, is near it; and will arise, by the assistance of such support, to the height of above thirty feet; and where no tree or support is at hand to wind about, it will knit or entangle itself together in a most complicated manner. The stalks of the older branches, which are most woody, are covered with a dark brown bark, whilst the younger shoots are more mottled with the different colours of brown and gray, and the ends of the youngest shoots are often of a light green. The stalks are round, and the bark is smooth. The leaves are the greatest ornament to this plant; for they are tolerably large, and of a good shining green colour on their upper surface, and cause a variety by exhibiting their under surface of a hoary cast. Their figure is oblong, or rather more inclined to the shape of a spear, as their ends are pointed, and they stand opposite by pairs, on short footstalks. Their flowers afford pleasure to the curious examiner of nature. Each of them singly has a star-like appearance; for though it is composed of one petal only, yet the rim is divided into segments, which expand in such a manner as to form that figure. Their inside is hairy, as is also the nectarium, which surrounds the petal. Four or five of the flowers grow together, forming a kind of umbel. They are of a chocolate colour, are large, and will be in blow in July and August, and sometimes in September. In the country where this genus grows naturally, they are succeeded by a long taper pod, with compressed seeds, hanging down to their tops.

The PROPAGATION of this climber is very easy; for if the cuttings are planted in a light, moist soil, in the autumn or in the spring, they will readily strike root. Three joints at least should be allowed to each cutting; They should be the bottom of the preceding summer's shoot; and two of the joints should be planted deep in the soil.

Another, and a never-failing method is by layers; for if they are laid down in the ground, or a little soil only loosely thrown over the young preceding summer's shoots, they will strike root at the joints, and be good plants for removing the winter following.

PHILADELPHUS.

LINNEAN Class and Order, *Icosandria Monogynia*: Each flower contains about twenty males and one female. There are only two SPECIES:

1. PHILADE'LPHUS *Corona'rius*: The COMMON SYRINGA, or the CUCUMBER TREE, or the MOCK ORANGE, or the PHILADELPHUS; *a deciduous shrub*; native place uncertain.

2. PHILADE'LPHUS *Inodo'rus*: The CAROLINA SYRINGA, or PHILADELPHUS, or the SCENTLESS SYRINGA; *a tall deciduous shrub*; native of Carolina.

1. The MOCK ORANGE or PHILADELPHUS admits of three remarkable *Varieties*: Common Syringa, Double Syringa, and Dwarf Syringa.

The *Common Philadelphus*, or *Mock Orange*, is a very beautiful shrub, about six feet in growth. It sends forth numerous branches from the root, which are brittle and full of pith. These also send out others from their sides that are shorter, stand generally opposite by pairs, and are alternately of contrary directions. These younger shoots are slender, jointed, and covered, some with a smooth pale brown bark, others with a smooth bark of a darker colour. The leaves are large, and placed opposite, by pairs, on short footstalks. They are of an oval, spear-shaped figure, of a strong green colour, and have the flavour of a cucumber. Their edges are irregularly indented, their surface is rough, and they fall off early in the autumn. This shrub, by its flowers, makes a fine figure in May and June: for they are produced in clusters both at the ends and from the sides of the branches. They are of a fine white colour, and exceedingly fragrant. The petals of which each is composed are large, and spread open like those of the Orange; and then forming branches, which stand each on its own separate short footstalk, and being produced in plenty all over the shrub, both at once feast the eye and the smell: The eye, by the pleasing appearance it will then have; the smell, as the air at some distance will be replete with the odoriferous particles constantly emitted from those fragrant flowers. These flowers, however, are very improper for chimneys, water-glasses, &c. in rooms; for in those places their scent will be too strong; and for the ladies in particular, often too powerful.

The *Double-flowering Philadelphus*, or *Mock Orange*, is a low variety of this species, seldom rising to more than a yard high. The description of the other belongs to this sort, except that the leaves and branches are proportionally smaller and more numerous, and the bark of the shoots of a lighter brown. It is called the Double-flowering Syringa, because it sometimes produces a flower or two with three or four rows of petals; whereas in general, the flowers, which are very few, and seldom produced, are single. They are much smaller than those of the other; and you will not see a flower of any kind on this shrub oftener perhaps than once in five years. It is hardly worth propagating on this account; so that a few plants only ought to be admitted into a collection, to be ready for observation.

The *Dwarf Philadelphus* or *Mock Orange* is still of lower growth than the other, seldom arising to more than two feet in height. The description of the first sort still agrees with this: only that the branches and leaves are still proportionally smaller and more numerous, and the bark is still of a lighter brown. It never produces flowers.

2. The CAROLINA MOCK ORANGE, or PHILADELPHUS, is the tallest grower by far of any sort of the Syringa, and makes the grandest show when in blow; though the flowers are destitute of smell. It will grow to about fourteen feet in height; the branches are numerous and slender, and the bark on the young shoots is smooth and brown. The leaves also are smooth and entire, and placed opposite by pairs on longish footstalks. The flowers, which are produced at the ends of the branches, are of a fine white colour, and, being larger than those of the first sort, have a noble look.

The PROPAGATION of all the sorts is very easy. They are encreased by layers, cuttings, or suckers. 1. The most certain method is by layers; for the young twigs being laid in the earth in the winter, will be good rooted plants by the autumn following. 2. These plants may be encreased by cuttings, which, being planted in October, in a shady moist border, many of them will grow; though it will be proper to let those of the Carolina sort remain until spring, and then to plant them in pots, and help them by a little heat in the bed. By this assistance, hardly one cutting will fail. 3. They may be also encreased by suckers; for all the sorts throw out suckers, though the Carolina Syringa the least of any. These will all strike root, and be fit for the nursery ground: Nay, the Double-flowering and the Dwarf sorts are always encreased this way; for these plants having stood five or six years, may be taken up and divided into several scores. All the plants however, whether raised from layers, cuttings, or suckers, should be planted in the nursery ground to get strength, before they are set out for good. They should be planted a foot asunder, and the distance in the rows should be two feet. After this, they will require no other care than hoeing the weeds, until they have stood about two years, which will be long enough for them to stand there. The Mock Orange dislikes a wet situation.

PHILLYREA.

LINNEAN Class and Order, *Diandria Monogynia*; Each flower contains two males and one female. There are three SPECIES.

1. PHILLYRE'A *Me'dia:* The OVAL-LEAVED PHILLYREA, or MOCK PRIVET, or the MEDAL-LEAVED PHILLYREA; *a tall evergreen shrub;* native of the South of Europe.

2. PHILLYRE'A *Latifo'lia:* The BROAD-LEAVED PHILLYREA, or MOCK PRIVET; *a tall evergreen shrub;* native of the South of Europe.

3. PHILLYRE'A *Angustifo'lia:* The NARROW-LEAVED PHILLYREA, or MOCK PRIVET; *a deciduous shrub;* native of Spain and Italy.

1. The OVAL-LEAVED or MIDDLE PHILLYREA has the following *Varieties:* Common Smooth-leaved *Phillyrea*, Privet-leaved *Phillyrea*, Olive-leaved *Phillyrea*.

The *Common Smooth-leaved Phillyrea* will grow to be twelve or fourteen feet high, and the branches are many; the older of which are covered with a dark brown bark, but the bark on the young shoots is of a fine green colour. They are oval, spear-shaped, and grow opposite, by pairs, on strong short footstalks. The flowers are produced in clusters, from the wings of the young branches. They are small, and of a kind of greenish white colour; they appear in March, and are succeeded by berries, which are first green, then red, and black in the autumn when ripe.

Privet-leaved Phillyrea will grow to be ten or twelve feet high, and the branches are covered with a brown bark. The leaves a little resemble the Privet; they are of a fine green colour, and grow by pairs on the branches. They are of a lanceolate figure, and their edges are entire, or nearly so; for some signs of serratures sometimes appear. The flowers grow like others, in clusters, in March. They are whitish, and are succeeded by small black berries.

The *Olive-leaved Phillyrea* is the most beautiful of all the sorts. It will grow to be about ten or twelve feet high; and the branches, which are not numerous, spread abroad in a free easy manner, which may not improperly be said to give the tree a fine air. They are long and slender, and are covered with a light brown bark; and on these the leaves stand opposite by pairs, at proper intervals, on short footstalks. They resemble those of the Olive-tree, and are of so delightful a green as to force esteem. Their surface is exceedingly smooth, their edges are entire, and the membrane of a thickish consistence. The flowers are small and white, and like the other sorts make no show. They are succeeded by single roundish berries.

2. The BROAD-LEAVED PHILLYREA will grow to be about twelve feet high. The branches seem to be produced stronger and more upright than those of the former species. The bark is of a gray colour, spotted with white, which has a pretty effect; and the leaves grow opposite by pairs. They are of a heart shaped oval figure, of a thick consistence, and a strong dark green colour. Their edges are sharply serrated, and they stand on short strong footstalks. The flowers grow from the wings of the leaves in clusters, in March. They are of a kind of greenish white colour, make no show, and are succeeded by small round black berries.

The *Varieties* of this species are, the *Ilex*-leaved *Phillyrea*, the Prickly *Phillyrea*, the Olive *Phillyrea* with slightly-serrated edges.

3. NARROW-LEAVED PHILLYREA is of lower growth, seldom rising higher than eight or ten feet. The branches are few and slender, and they [illegible] are beautifully spotted with gray spots. The leaves, like the others, stand opposite by pairs. They are long and narrow, spear-shaped and undivided, of a deep green

colour, and of a thick consistence. Their edges are entire, and they also stand on short footstalks. The flowers, like the others, make no show. They are whitish, and grow in clusters from the wings of the branches, in March; and are succeeded by small round black berries.

The *Varieties* of this species are, the Rosemary *Phillyrea*, Lavender *Phillyrea*, Striped *Phillyrea*, &c.

The *Phillyreas* are to be PROPAGATED by seeds or layers. 1. By seeds. These ripen in the autumn, and should be sown soon after. The mould must be made fine, and if it is not naturally sandy, if some drift sand be added, it will be so much the better. The seeds for the most part remain until the second spring before they come up; and if they are not sown soon after they are ripe, some will come up even the third spring after. They must be sown about an inch deep; and during the following summer should be kept clean from weeds. After they are come up, the same care must be observed, and also watering in dry weather; and if the beds are hooped, and the plants shaded in the hottest season, they will be so much the better for it. However, at the approach of winter they must be hooped, and the beds covered with mats in the hardest frosts, otherwise there will be danger of losing the whole crop; for these trees, though they are very hardy when grown tolerably large, are rather tender whilst seedlings. It will be proper to let them remain in the seed beds, with this management, for two summers, and then, waiting for the first autumnal rains, whether in September or October (and having prepared a spot of ground), they should at that juncture be planted out, and this will occasion them immediately to strike root. The distance they should be planted from each other need not be more than a foot, if they are not designed to remain long in the nursery: If there is a probability of their not being wanted for some years, they should be allowed near double that distance; and every winter the ground in the rows should be well dug, to break their roots, and cause them to put out fresh fibres, otherwise they will be in danger of being lost, when brought into the shrubery quarters. 2. By layers they will easily grow. The autumn is the best time for this operation, and the colour, and have narrow involucra. They appear in June and July, but are not succeeded by ripe seeds in England.

There is a *Variety* of this species, with iron-coloured flowers; and another with flowers of a bright purple.

There are some other shrubby sorts of *Phlomis*, of great beauty; but these not only often lose their leaves, and even branches, from the first frost, but are frequently wholly destroyed, if it happens to be severe. They are low shrubs, very beautiful, and look well among perennial flowers, where they will not only class as to size with many of that sort, but, being rather tender, may with them have such extraordinary care as the owner may think proper to allow them.

The PROPAGATION of the above sorts is very easy, either by layers or cuttings. 1. If a little earth be thrown upon the branches, any time in the winter, they will strike root, and be good plants by the autumn following, fit for any place. Thus easy is the culture by that method. 2. The cuttings will also grow, if planted any time of the year. Those planted in winter should be the woody shoots of the former summer: These may be set close in a shady border; and being watered in dry weather, will often grow. This shrub may be propagated by young slips, also, in any of the summer months. These should be planted in a shady border, like Sage, and well watered. If the border is not naturally shady, the beds must be hooped, and covered with matting in hot weather. Watering must be constantly afforded them; and with this care and management many of them will grow.

PINUS.

LINNEAN Class and Order, *Monoecia Monadelphia*: Male flowers containing many stamina joined at the base, and female flowers containing one pistil, upon the same plant; the males being disposed in scaly bunches, the females in imbricated cones. There are twelve Species:

1. Pi'nus *La'rix:* The Larch, or Deciduous Pine; *a tall deciduous tree;* native of Switzerland, the Alps, and some parts of Italy.

2. Pi'nus *Slyve'stris:* The Wild Pine; *a tall evergreen tree;* native of Scotland and the northern parts of the continent of Europe.

3. Pi'nus *Stro'bus:* The Weymouth Pine, or the White Pine; *a tall evergreen tree;* native of New England, Virginia, Canada, and Carolina.

4. Pi'nus *Pine'a:* The Stone Pine; *an evergreen tree;* native of Spain and Italy.

5. Pi'nus *Cembra:* The Cembro, or the Cembro Pine; *an evergreen tree;* native of Switzerland, the Alps, Siberia, and Tartary.

6. Pi'nus *Tæ'da:* The Swamp Pine; *an evergreen tree;* native of the Swamps of Virginia and Canada.

7. Pi'nus *Ce'drus:* The Cedar of Lebanon; *an evergreen tree;* native of Mount Lebanon.

8. Pi'nus *Pice'a:* The Yew-leaved Fir; *a tall evergreen tree;* native of Scotland, Sweden, and Germany.

9. Pi'nus *A'bies:* The European Spruce Fir; *a tall evergreen tree;* native of the northern parts of Europe and of Asia.

10. Pi'nus *Canade'nsis:* The American Spruce Fir, or the Newfoundland Spruce Fir; *a tall evergeeen tree;* native of Canada, Pennsylvania, and other parts of North America.

11. Pi'nus *Balsa'mea:* The Hemlock Fir; *a low evergreen tree;* native of Virginia and Canada.

12. Pi'nus *Orienta'lis:* The Oriental Fir; *a low evergreen tree;* native of the East.

1. The Larch. This is a lofty tree: its branches are slender, and inclined downward: the leaves are of a light green; and, as those of the Cedar of Lebanon, are bunched together like the pencils or little brushes of the painter. In spring, when the leaves and flowers are breaking out, the Larch has a particularly elegant appearance; and in winter, it gives variety to a wooded scene by the bright colour of its naked branches: It is in good esteem as an *Ornamental;* and its timber is of

the more *useful* kind: it is superior to that of most of the *Pinus* tribe. HANBURY says, "Many encomiums have been bestowed on the timber of the Larch: and we find such a favourable account of it in ancient authors, as should induce us to think it would be proper for almost any use. EVELYN recites a story of Witsen, a Dutch writer, that a ship built of this timber and Cypress, had been found in the Numidian sea, twelve fathoms under water, sound and entire, and reduced to such a hardness as to resist the sharpest tool, after it had lain submerged above a thousand four hundred years. Certain it is, this is an excellent wood for ship and house building. At Venice this wood is frequently used in building their houses, as well as in Switzerland, where these trees abound: So that, without all doubt, the Larch excels for masts for ships, or beams for houses, doors, windows, &c. particularly as it is said to resist the worm.

"In Switzerland, their houses are covered with boards of this wood, cut out a foot square; and as it emits a resinous substance, it so diffuses itself into every joint and crevice, and becomes so compact and close, as well as so hardened by the air, as to render the covering proof against all weather. But as such covering for houses would cause great devastation in case of fire, the buildings are confined to a limited distance, by an order of police from the magistrates. The wood, when first laid on the houses, is said to be very white; but this colour, in two or three years, is changed, by means of the sun and resin, to a black, which appears like a smooth shining varnish."

Of the *Common Larch* there are several *Varieties*. The flowers which the commonest sort exhibits early in the spring are of a delicate *red* colour; another sort produces *white* flowers at the same season, and these have a delightful effect among those of the Red sort; whilst another, called the *Black Newfoundland larix*, encreases the variety, though by an aspect little differing from the others. There are also Larches with *greenish* flowers, *pale red*, &c. all of which are accidental Varieties from seeds. These Varieties are easily distinguished, even when out of blow: The young shoots of the White-flowering Larch are of the lightest green, and the cones when ripe are nearly white. The Red-flowering Larch has its shoots of a reddish cast, and the cones are of a brown colour; whilst the cones and shoots of the Black Newfoundland Larch are in the same manner proportionally tinged. The cones, which are a very great ornament to several sorts of the Pines, are very little to these. Their chief beauty consists in the manner of their growth, the nature and beauty of their pencilled leaves, and fair flowers; for the cones that succeed them are small, of a whitish, a reddish, or a blackish brown colour, and make no figure.

The method of PROPAGATION is from seed: The cones may be gathered in November, and should be left in a dry place till the spring. Just before sowing, let the cones be opened or torn into four quarters by a knife, the point of which must be thrust exactly down the center, so that the seeds in their respective places may not be damaged. Formerly, great pains were bestowed in getting at the seeds, by cutting off the scales of the cones singly, and letting the seeds drop. This occasioned great expence to those who wanted a quantity of seeds; so that is wholly laid aside now, for the more easy method of opening them with knives, and then threshing them. A certain price is generally allowed per thousand to the poor for opening them. When a sufficient quantity is opened, they should be threshed in a room, which will divide the scales, and dislodge the seeds, without injuring many of them. Three thousand cones will generally produce about a pound of good seeds. The cones being sufficiently broken, and the seeds threshed out, they should be winnowed or sieved to have clear seeds; after which they will be ready for sowing.* Let the seminary consist of a spot of fine light earth; and let the seeds be sowed in beds a quarter of an inch deep. In the spring, when the plants appear, they should be gently refreshed with water in dry weather, and carefully kept clean from weeds during the whole summer. By the autumn they will not have shot more than an inch or two; and in spring they should be pricked out in beds about three inches asunder. The spring following, they must be taken out of these beds with care, and planted in the nursery ground, three feet asunder in the rows, and two feet distance; and here they may remain until they are fit to be planted out finally, which will be about the second or third year after. If they grow well in the nursery, it is advisable to plant them where they are to continue after having attained two years strength in that place, if the ground can possibly be prepared for their reception; since these trees always thrive best when removed small from the nursery, if they are of a sufficient size not to be injured by the weeds; if they are smaller, the owner must keep them clean. The Larch Tree will grow extremely well on almost any soil, as well in clays as in other sorts; it thrives amazingly on the declivities of hills, and sides of high mountains; it is hardy enough to resist the severest cold, therefore proper for all exposed places: And, as the timber is so valuable, and its growth so quick, it is a tree which may be propagated to the great advantage of the owner.

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* The method now chiefly in practice by those who raise Larches on a large scale, is to scatter the cones upon the prepared seed beds, and leave it to the sun and air to extract the seeds. When a sufficient number are discharged, the cones are raked off; and either removed to another seed bed, or laid up for another season.

It is almost impossible to say too much in favour of this Tree. It grows on the barrenest soils, and in the bleakest situations. In rich genial sites it luxuriates too much, grows top-heavy, and either loses its head, or is bowed down into an unsightly form, and becomes unprofitable. Its timber, whether in the water, or in contact with the earth, is durable almost beyond comparison. See Vol. I. pages 143 and 178.

2. The WILD PINE. This species includes two *Varieties:* The Scotch Fir and the Pineaster.

The *Scotch Fir.* This tree is too well known to require any description: for a remark on it, see the Article TIMBER GROVES. Vol. I. page 145.

The *Pineaster.* This is a large timber tree, and naturally throws out very large arms, some of which will be nearly horizontal. "Some people think these trees are very ornamental on their account; for in the winter especially they appear naked, and are of a yellowish colour: and being spread abroad thus large, and without order, in the mixture of the more regular sorts of growing Firs, they make a good contrast. The Gardener must observe, that the leaves of this sort are very large and long, and of a lighter green than those of the Scotch Fir, which is another circumstance to direct him to its situation; and he must also observe, that those long and large leaves which ornament the younger branches only, give the tree a majestic air; and as the larger arms appear naked to view, so the younger, being thus plentifully furnished, have a noble effect, besides what beauty it receives from its numerous cones." HANBURY.

Its PROPAGATION may be the same as that of the Scotch Fir.

3. The WEYMOUTH PINE. This is a princely tree, majestic and elegant in the highest degree. HANBURY says, "It will grow to more than a hundred feet high, and makes such excellent masts for ships, that the Legislature, in the reign of Queen Anne, enacted a law enforcing the encouragement of the growth of these trees in America, where they abound." As an *Ornamental*, it stands first of all the Pines. The bark is smooth and soft to the touch, and, though of a dusky brown colour, on the whole has a delicate look. The leaves are truly ornamental, though their colour is nothing extraordinary; but they are long and slender, and are formed into tassels, which hang in so easy and elegant a manner, as "to make one in love with the tree." HANBURY.

The PROPAGATION of the Weymouth Pine is not so difficult as has been heretofore understood: It may be raised in common seed beds with ordinary care. HANBURY gives us the following directions: "The seeds of the Weymouth Pine are larger than those of the Scotch Fir; and in order to raise the young plants, it will be proper to sow them in pots or boxes, which may be removed into the shade after the plants are come up, when the sun's rays are violent. If they are sown in beds of fine light earth, they should be hooped, and constantly covered with mats from the sun's heat, and as carefully uncovered when he sets. In about six or seven weeks after sowing, the young plants will appear, when they should be regularly guarded from birds, otherwise all your seeds, time, and trouble, will be lost; for if the birds take to them at their first coming up, and are unmolested, they will not leave a single plant. The plants being now above ground, the weeds should be constantly picked out, as they appear, lest, the fibres of their roots mixing with those of the Firs, many of the latter may be drawn out with them. In dry weather they should be refreshed with water: But this must be done sparingly, and with the utmost caution; for as the stems of the young plants are very slender, by over-watering they are frequently thrown aside, which they hardly ever recover. Thus (continues HANBURY) I have known Gentlemen who, in attempting to raise these trees, have seen the young plants go off without perceiving the cause; and the more watering and pains they have taken, have found the plants persist in this way more and more, to their great mortification and astonishment. In the spring following these plants should be pricked out in beds half a foot asunder each way; and here they may stand two years, when they may be either finally planted out, or removed into the nursery, at the distance of one foot asunder, and two feet in the rows. If care has been taken of them in the nursery, they may be removed at a considerable height with great assurance of success; for it is much easier to make this Pine grow than any of the other sorts: So that where they are wanted for ornament in parks, open places, &c. a show of them may be made in a little time.

"The soil the Weymouth Pine delights in most is a sandy loam; but it likes other soils of an inferior nature: and although it is not generally to be planted on all lands, like the Scotch Fir, yet I have seen it luxuriant and healthy, making strong shoots, on blue and red clays, and other sorts of strong ground. On stony and slaty ground, likewise, I have seen some very fine trees: So that I believe whoever is desirous of having plantations of this pine, need not be curious in the choice of his ground."

4. The STONE PINE will not grow to the height of the former; and the bark is rough, and on some trees of a reddish colour. The leaves are long, very ornamental, and of a fine sea green colour. The cones

give this tree the grandest look; for they are sometimes near six inches long, and are large, thick, and turbinated. The scales are beautifully arranged, and the whole cone is large and curious. "The kernels are eatable, and by many preferred to almonds: in Italy they are served up at table in their desserts; they are exceedingly wholesome, being good for coughs, colds, consumptions, &c. on which account only this tree deserves to be propagated. HANBURY continues, It may be very proper here to take notice of a very great and dangerous mistake Mr. MILLER has committed, by saying, under this article of Stone Pine, that seeds kept in the cones will be good, and grow, if they are sown ten or twelve years after the cones have been gathered from the trees; whereas the seeds of this sort, whether kept in the cones or taken out, are never good after the first year; and though sometimes a few plants will come up from the seeds that are kept in the cones for two years before, yet this is but seldom; neither must a tenth part of a crop be expected. This caution is the more necessary, as several Gentlemen who had cones, upon reading Mr. MILLER's book, and finding the seeds would take no damage when kept there, deferred the work for a season or two, when they thought they should have more conveniency either of men or ground for their pupose; and were afterwards wholly disppointed, no plants appearing, the seeds being by that time spoiled and worth nothing."

The PROPAGATION of the Stone Pine is from the seeds, which may be procured from their large cones by the help of a vice; for this will so effectually break the cones, without hurting the seeds, that they may be taken out with pleasure. The cones should be fresh, not older than a year or two at farthest, or the seeds will not be good; for although it has been asserted, that the seeds of Pines in general will keep in their cones many years, yet the cones of this species of Pine are an exception, as the seeds are rarely found good after the cones are one year old. The season for sowing these seeds is the middle of March. The weather being fine, and the ground fit for working, they should be sown about half an inch deep, in beds of fine light earth. In about seven weeks the plants will appear, branches. This is a tree worthy of propagation, whether we regard its timber, or its fine appearance when growing. Its timber is said to be equal in value to that of most sorts of the Pine; and besides the beauty it receives from its fine long three-sheathed leaves, its head will be ornamented with very large cones, the good effect of which may be easily conceived.

" The *Two-leaved American Pine* will grow to be a large tree, and the leaves are long; two only grow in each sheath, which occasions its being so distinguished. The leaves are of a lighter colour than many of the others. On the whole, it is a fine tree, but will make very little variety, unless closely examined. The cones of this sort are much larger, and the scales more beautifully arranged, than those of the Scotch Fir, though they are not of the size of the former sort. This Fir also likes a moist soil.

" The *Yellow American Pine*, the *Yellow Tough Pine*, and the *Tough Pine of the Plains*, I received by those names: There is some difference in the size and shape of the cones, though that seems inconsiderable. These three sorts make very little variety among themselves; for they have nearly the same manner of growth; and though I have none that are yet grown to any large size, yet they all seem to have a tendency to throw out large arms, a little like the Pineaster. How valuable the timber may be, I cannot tell; but the younger shoots of all of them are exceeding tough, and had we plenty, would make excellent bands for fagoting. The leaves are long, and of a yellowish green colour; there are three, and sometimes two only, in a sheath. If a large quarter of these were to be planted, to be seen at a distance, by any of the darker-coloured sorts of Pines, their very different shade must have a delightful effect.

" *Bastard Pine* is another sort we receive from America, though it differs very little from some of the other American sorts. The leaves are long and slender; sometimes two and sometimes three grow in each sheath. They are generally of a yellowish colour towards their base, though their ends are green. The cones are rather long and slender, and the ends of the scales are so pointed, as to occasion its being called by some the Prickly-coned Pine.

"*Frankincense Pine* is another American sort, which we receive under that name. The leaves of it are long, and of a fine green colour. They are narrow, and three are contained in each sheath. They closely ornament the younger branches all around. This tree, however, beautiful as it is on their account, makes little variety among the Pines, for many others look like it; but by the cones it makes a striking difference; for these are exceeding large, even as large as those of the Stone Pine; but their scales are looser, and their arrangement is not quite so beautiful.

"The *Dwarf Pine*, as its name imports, is the least grower of all the sorts of Pines. It is an American plant, and the leaves grow two in a sheath; these are short, and of a pretty good green colour. This sort is coveted by some, on account of its low growth; but it is the least beautiful of any of the Pines, and has naturally a shabby look. The cones are small, and the scales are pointed. There is very little in the plant to make it desirable.

"There are many other sorts of American Pines, which we receive from thence with the like cant names as those of the above, which I have chose to retain, as they will probably be continued to be sent over, and that the gardener receiving them as such may best know what to do with them. In many of those sorts I see at present no material difference, so am induced to think they are the same, sent over with different names. Some of the sorts above mentioned differ in very few respects; but I have chose to mention them, as a person may be supplied with the seeds from Pennsylvania, Jersey, Virginia, Carolina, &c. where they all grow naturally: and having once obtained the seeds, and from them plants, they will become pleasing objects of his nicest observations."

These may all be propagated in the same manner as the WEYMOUTH.

7. The CEDAR OF LEBANON. This, in its native soil, has always been considered as the most majestic tree in nature. The leaves grow in pencils like those of the Larch; and the extremities of its branches are likewise declining, as those of the Deciduous Pine; to which at first sight it bears a strong resemblance;

excepting in that it is less lofty and more spreading. There are some very fine Cedars of Lebanon in Stow Gardens. It ranks among the first of the *ornamental* tribe; and the *uses* of its timber are universally acknowledged. **Hanbury** enumerates the following: "It was greatly used in the building of Solomon's Temple, which at once convinces us of its superlative excellence. It is said to continue sound for two thousand years; and we are told, that in the Temple of Apollo at Utica there was found cedar wood of that age. The magnificent temples of the Pagans, as well as those of the true God, were chiefly built of this famous timber. The statue of the Great Goddess at Ephesus was made of this material; and if this tree abounded with us in great plenty, it might have a principal share in our most superb edifices. The effluvia constantly emitted from its wood are said to purify the air, and make rooms wholesome. Chapels and places set apart for religious duties, being wainscoted with this wood, inspire the worshippers with a more solemn awe. It is not obnoxious to worms; and emits an oil which will preserve cloth or books from worms or corruption. The sawdust will preserve human bodies from putrefaction, and is therefore said to be plentifully used in the rites of embalming, where practised."

The method of **propagation** is this: Having procured the cones, whether from the Levant or of our own growth, the seeds, a little before sowing, should be got out in this manner: Let a hole be bored with a gimblet exactly up the center of each cone, from the base to the apex; put them into a tub of water, where they may remain till the next day; then having a wooden peg, rather bigger than the gimblet, let it be thrust down the hole, and it will so divide the cones, that the different scales may be taken away, and the seeds picked out. In doing this, great care must be taken not to bruise and hurt the seeds, which will then be very tender. The soil in which you sow these seeds should be rather of a sandy nature; or, for want of this, some mould taken from a rich pasture, and sieved with a little drift sand, will serve the purpose. Having the mould and seeds ready, in the beginning of March let the latter be sown in pots or boxes near half an inch deep: In about seven or eight weeks the plants will come up, when they should be removed into the shade from the heat of the sun: where they may stand, but not under shelter, all the summer; during which time they should be kept clean from weeds, and watered now and then. In the winter season they must be removed into a warmer situation; or, if it is likely to prove very severe, they should be sheltered either by mats, or removed into the greenhouse, or covered with a hotbed frame; for they are subject to lose their young tops at first, by the severity of frosts. In the beginning of April following, these plants may be pricked out in beds four inches asunder; and if the weather proves dry, they should be shaded and watered till they have taken root; after which, they will want little shading and less watering. Indeed, nothing more is required than keeping them clean from weeds, and covering the ground so as to keep it moist, and prevent its chapping by the sun's rays. In these beds they may remain two years; when, in the spring, they should be transplanted to the nursery, where they may remain till they are finally planted out. During the time they are in the nursery, and after planting out, many will frequently have a tendency to droop in their leading shoot: As soon, therefore, as this is perceived, an upright stake must be driven into the ground, to which the shoots should often be tied with bass matting to keep them in their upright growth. This, however, will not always effect it; for some, after being tied, so effectually turn the shoot downwards over the bandage, though loose, as to appear as if they were beat down on purpose. The Larch also will sometimes rebel in this way: So that it would not be amiss, in both cases, whenever they first discover any signs of such a tendency, to lighten the head, by nipping off the extremities of some few of the largest branches.

When these trees are planted out to remain, they should be left to Nature, after being properly fenced: Not a knife, nor a hatchet should come near them; lopping even their lowest branches is so injurious; that it both retards their growth and diminishes their beauty.

The Cedar of Lebanon will grow well in almost any sort of soil or situation. As a proof of this, we need only observe, that in its native situation the roots are during part of the year covered with frost and snow.

8. The **Yew-leaved Fir.** This species includes the Silver Fir and the Balm of Gilead Fir.

The *Silver Fir* is a noble upright tree.* The branches are not very numerous, and the bark is smooth and delicate. The leaves grow singly on the branches, and their ends are slightly indented. Their upper surface is of a fine strong green colour, and their under has an ornament of two white lines, running lengthways on each side the midrib, on account of which silvery look this sort is called the Silver Fir. The cones are large, and grow erect; and when the warm weather comes on, they soon shed their seeds; which should be a caution to all who wish to raise this plant, to gather the cones before that happens.

The *Balm of Gilead Fir* has of all the sorts been most coveted, on account of the great fragrance of its leaves; though this is not its only good property; for it is a very beautiful tree, naturally of an upright growth, and the branches are so ornamented with their balmy leaves, as to exceed any of the other sorts in beauty. The leaves, which are very closely set on the branches, are broad; and their ends are indented. Their upper surface, when healthy, is of a fine dark green colour, and their under has white lines on each side the midrib lengthways, nearly like those of the Silver Fir. These leaves, when bruised, are very finely scented; and the buds, which swell in the autumn for the next year's shoot, are very ornamental all winter, being turgid, and of a fine brown colour: and from these also exsudes a kind of fine turpentine, of the same kind of (though heightened) fragrancy. The tree being wounded in any part, emits plenty of this turpentine: and **Hanbury** says, "it is supposed by many to be the sort from whence the Balm of Gilead is taken, which occasions this tree being so called. But this is a mistake; for the true Balm of Gilead is taken from a kind of *Terebinthus;* though I am informed, that what has been collected from this tree has been sent over to England from America (where it grows naturally), and often sold in the shops for the true sort."

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* Mr. **Marsham** says, "The tallest trees I have seen were Spruce and Silver Firs, in the vallies in Switzerland. I saw several Firs in the Dock-yards in Venice 40 yards long; and one of 39 yards was 18 inches diameter at the small end. I was told they came from Switzerland."

These trees are PROPAGATED by sowing the seeds in a shady border, about the middle of March. They will readily come up if the seeds are good; but as this is not often the case, especially if they are procured from the seedsmen, they should be sown very close, otherwise you will be certain of having a very thin crop. The succeeding summer the plants will require no trouble, except keeping them clean from weeds; and the spring after that they should be pricked out in beds at about four inches distance from each other. Here they may stand for two years, when they should be planted in the nursery, in rows a foot asunder every way. The year, or at farthest two years, after they have been set in the nursery, they should be finally planted out; for if they are continued longer, many of them will die in the removal, and those which grow frequently lose their leading shoot, and meet with so great a check as to be hardly able to get into a good growing state for several years.

The Silver Fir is exceedingly hardy, and will grow in any soil or situation, but always makes the greatest progress in a good rich loamy earth.

The latter must be planted in a deep, rich, good earth; neither will it live long in any other sort of soil. It matters little whether it be a black mould, or of a sandy nature, provided it be deep, and there is room for the roots to strike freely. As these trees have hitherto been planted without this precaution, and as such a kind of soil does not often fall in the ordinary course of gardening, very few trees that have been planted many years are in a flourishing state; for if they do not like the soil, or if the roots begin to meet with obstructions, they soon begin to decline, which will be frequently in less than seven years; the first notice of which is, their leaves, which are naturally of a fine strong green colour, lose their verdure, and appear with a yellow tinge; and this colour grows upon them daily, until the appearance of the tree is changed.

Another sign of this tree being at its *ne plus ultra* is, its producing vast plenty of cones; this argues a weakness, and they generally die away by degrees soon after. This is always the case where the soil does not wholly agree with them; but where it is deep and good, they will be healthy and flourishing, and produce cones for seeds.

9. The EUROPEAN SPRUCE FIR. This species includes the Norway Spruce, and the Long-coned Cornish Fir.

The *Norway Spruce* is a tree of as much beauty while growing, as its timber is valuable when propagated on that account. Its growth is naturally like the Silver, upright; and the height it will aspire to may be easily conceived, when we say that the white deal, so much coveted by the joiners, &c. is the wood of this tree; and it may perhaps satisfy the curious reader to know, that from this Fir pitch is drawn. The leaves are of a dark green colour; they stand singly on the branches, but the younger shoots are very closely garnished with them. They are very narrow, their ends are pointed, and they are possessed of such beauties as to excite admiration. The cones are eight or ten inches long, and hang downwards.

The manner of PROPAGATING this tree is nearly the same as that of the Scotch Fir, only this will more easily grow when of a large size, and consequently will not require removing so often in the nursery. In the middle of March, having got the seeds out of the cones, sow them in a north border; for when they come up, by being constantly shaded all the summer in such a situation, they will shoot much stronger, and be better to prick out the spring following in the nursery. In about six or seven weeks after sowing, the young plants will appear, when they should be screened with the usual care from the birds, which otherwise would soon destroy them. By the autumn, many of these young plants, if they are kept clean from weeds, and watered in dry weather, will have shot three or four inches: and in spring they should be carefully taken out of their seed beds, so that the fibres may by no means be broken off or injured. Being thus cautiously taken up, they should be as carefully planted in the nursery ground, at the distance of one foot asunder each way. Here they may remain, with keeping them free from weeds for three years, when they should be set out in the places where they are designed to remain. But if larger trees are desired for this purpose, they should be taken up and planted in the nursery, a foot and a half asunder, in rows two feet and a half distant, where they may stand, if required, till they are six or eight feet high, without any other removing.

When they are set out finally, they may be planted, with tolerable hopes of success; for the Spruce Fir is not so nice or difficult in shifting its quarters as any of the other sorts of Pines. But though these trees may be transplanted at a good height, it is always adviseable to remove them to the places designed for them with all possible dispatch, as they are more certain of growing, and will recover the check occasioned in all trees by removal in less time.

The better the soil is, the faster will the Spruce Fir grow, though it will thrive very well in most of our English lands. In strong loamy earth it makes a surprising progress; and it delights in fresh land of all sorts, which never has been worn out by ploughing. &c. though it be ever so poor.

The *Long-coned Cornish Fir* differs scarcely in any respect from the Norway Spruce, except that the leaves and the cones are larger.

10. The AMERICAN SPRUCE FIR. This species includes three *Varieties:* The *White Newfoundland Spruce;* the *Red Newfoundland Spruce;* and the *Black Newfoundland Spruce.* These, however, differ so little, that one description is common to them all. They are of a genteel upright growth, though they do not shoot so freely or grow so fast with us as the Norway Spruce. The leaves are of the same green, and garnish the branches in the same beautiful manner as those of that species, only they are narrower, shorter, and stand closer. The greatest difference is observable in the cones; for these are no more than about an inch in length, and the scales are closely placed. In the cones, indeed, consists the difference of these three sorts: Those of the White species are of a very light brown colour; those of the Red species more of a nut-brown

or reddish colour; and those of the Black species of a dark or blackish colour. Besides this, there is scarcely any material difference; though it is observable, that this trifling variation seems to be pretty constant in the plants raised from the like seeds. These sorts will often flower, and produce cones when only about five or six feet high: and indeed look then very beautiful: but this is a sign of weakness in the plant, which it does not often fairly overget.

In many parts of England this is a very difficult tree to raise. It spends itself in cones, and becomes stunted and unsightly. Nevertheless, in the vallies of the Highlands, it thrives with full luxuriance and vigour; forming a rich picturable outline, possessing more strength of feature than most of the Pines. As a standard in polished scenery, there are few trees that equal it; as may be seen at ENVILLE and FISHERWICK.

11. The HEMLOCK FIR possesses as little beauty as any of the Fir tribe; though being rather scarce in proportion, it is deemed valuable. It is called by some the Yew-leaved Fir, from the resemblance of the leaves to those of the Yew tree. It is a tree of low growth, with but few branches; and these are long and slender, and spread abroad without order. The leaves do not garnish the branches so plentifully as those of any other sort of Fir. The cones are very small and rounded; they are about half an inch long; and the scales are loosely arranged. We receive these cones from America, by which we raise the plants; though this caution should be given to the planter, that this tree is fond of moist rich ground, and in such a kind of soil will make the greatest progress.

12. The ORIENTAL FIR. This is a low but elegant tree. The leaves are very short, and nearly square. The fruit is exceedingly small, and hangs downward; and the whole tree makes an agreeable variety with the other kinds.

In PROPAGATING the AMERICAN SPRUCE and the HEMLOCK FIR, the seeds being very small, a more than ordinary care should be taken of them, lest they be lost. They should be sown in pots or boxes of fine light mould, and covered over hardly a quarter of an inch.

They should be then plunged up to the rims in a shady place, and netted, to save them, when they first appear, from the birds. If the place in which they stand is shaded, they will need little or no water all summer, unless it proves a very dry one; and being all of a very hardy nature, they will not require the trouble of covering in the winter. The beginning of July after that, the Newfoundland Spruce Fir should be pricked out in beds at a small distance, though the Hemlock Spruce should remain in the pots a year longer, as they will then be very small. After they are planted, they must be well watered, and the beds must be hooped, to be covered with mats for shade. In hot weather the mats should be put over the beds by nine o'clock in the morning, and constantly taken off in the evenings, and remain so in cloudy and rainy weather. After they have taken root, they require no farther care, until they are planted out; which, says HANBURY, "custom has taught us to do in the autumn or in the spring; but I have by much experience found, that July is a good month for planting out all the sorts of Firs; and if it were done in a wet time, and the weather should continue moist or cloudy for two or three weeks, it would be by far the best time in the whole year. Whoever, then, plants out Firs in July, unless such weather happens, must shade and water them for a month or six weeks; but as shade is not to be afforded large trees of this kind, if there be many of them, their removal must be at the usual times, lest that parching time which often comes in the middle of summer burn them up before they can have time to take root. On this account, the planting of trees at Midsummer should be tenderly enforced: though I must declare, that I have repeatedly planted Scotch Firs of different sizes, some one yard and more, others six feet high, in the scorching heat, and left them to Nature, without giving them any assistance, and they have for the most part grown. Let others, if they please, make the experiment with a few, before they venture to plant out quantities at that season." This information, and the manner in which it is conveyed, do Mr. HANBURY great credit as a practical man and a writer.

[*For a farther Account of the* LARCH, *see the close of the Article* TIMBER GROVES *in the First Volume.*]

PISTACIA.

Linnean Class and Order, *Dioecia Pentandria:* Male flowers containing five stamina, and female flowers containing three pistils, upon distinct plants: There are five **Species**; four of which will endure our winters, provided they be placed in a warm well sheltered situation.

1. **Pista'cia** *Terebi'nthus:* The **Common Turpenti'ne Tree**; *a sub-evergreen tree or shrub;* native of Italy, Spain, and some parts of Africa.

2. **Pista'cia** *Ve'ra:* The **Common Pistacia**, or **Pista'cia Nut Tree**; *a sub-evergreen tree or shrub;* native of Persia, Arabia, Syria, and India, from whence we receive the nuts.

3. **Pista'cia** *Trifo'lia:* The **Three-leaved Pistacia**, or **Turpentine Tree**; *a low sub-evergreen tree or shrub;* native of Sicily.

4. **Pista'cia** *Narbone'nsis:* The **Large-fruited Turpentine Tree**; *a sub-evergreen tree or shrub;* native of Persia, Armenia, Mesopotamia, and the south of France.

1. The **Common Turpentine Tree** will grow to the height of about thirty feet. The bark of the trunk is thick, full of cracks, and of a dark brown colour; whilst that on the young shoots is thin and smooth. The leaves are pinnated and large, of a dark green colour, and grow alternately on the branches. The folioles of which each leaf is composed are oval, spear-shaped, and consist of three or four pairs, which are placed on the midrib, besides the odd one with which they are terminated. There will be male and female flowers on different plants. They exhibit their bloom in April: The male flower is nothing but a catkin, and the females make no figure; so that where philosophy has no view, it is from the desire of having an extensive collection that we procure these trees. In warm countries, the leaves of the Pistacia continue all

the year; with us, they fall off when attacked by the frosts. From the trunk flows the true turpentine; in the room of which, that taken from some of our Pines is generally substituted.

2. The **Common Pistacia** is about twenty feet in height. The trunk of this species also is covered with a dark brown bark, full of cracks, whilst the young shoots are smooth, and of a light brown colour. The leaves are likewise pinnated, being composed of about two or three pairs of folioles, which do not always stand exactly opposite on the midrib, terminated with an odd one. These folioles are large, and nearly of an oval figure: Their edges turn backwards, but have nevertheless a noble look. The male flowers are catkins of a greenish colour; and the female flowers are very small, and produced in clusters from the sides of the branches. April is the month of their flowering; and the female flowers are succeeded by the Pistacia nuts we eat.

3. The **Three-leaved Pistacia** is of about twenty five feet growth. The bark of the trunk is very rough, and of a dark brown colour; but that of the young shoots is smooth, and lighter. The leaves of this species are trifoliate. The folioles are of an oval figure, of a very dark green colour, and are greatly ornamental to the plant. Different trees will have male and female flowers: The males are greenish catkins; and the females have no petals, are small, and make no show.

4. **Larger-fruited Turpentine Tree** will grow to be about twenty-five feet high. The bark partakes more of a whitish colour, and is smoother than those of the other species. The leaves also are pinnated; but the folioles of which each is composed are not always of the same number: Sometimes there are three, sometimes five pair of folioles to form the compound leaf. These are of a paler green than any of the other sorts, of a roundish figure, and stand on longish footstalks. The male flower of this species also is a catkin; and the females are succeeded by nuts, which by many are liked, being eatable, like the Pistacia nuts. The leaves continue on these trees great part of the year, in warm countries.

The PROPAGATION. The seeds, which we receive from abroad, should be sown as soon as possible after their arrival. A compost should be prepared for them, mixed in the following proportions: Six barrows full of earth, from a fresh pasture, taken from thence at least a year before, with the green sward, and well turned and rotted; three barrows of drift or sea sand; and one barrow of old lime rubbish, beaten to dust: these should be all well mixed together. The seeds should be sown about half an inch deep in pots, which may then be set under a warm wall or hedge, until the hot weather begins to come on; when they should be removed into the shade, and plunged up to the rims in some mould. At the approach of winter, they may be removed into a warm place, and in spring a hotbed must be prepared for their reception. As these plants rarely come up the first year, this will be a better method than to plunge them in a hotbed soon after they are sown; for even with this assistance, they will be later before they come up, will be very weak and tender plants in the autumn, and will require extraordinary future care to preserve them; whereas, if they are suffered to remain unforced for one turn, they will be preparing to vegetate, and of course will come up themselves the second spring; but a hotbed will be necessary, as at that time it will make them shoot stronger. But this forcing must by no means be continued; a hitch only is to be given them, and they should immediately be hardened to the air. Watering and shade all summer must be allowed them; and they ought to be made as hardy as possible by the autumn. At the approach of winter, when other plants are to be set in the greenhouse, these should go with them, or be placed under a hotbed frame. They should be set out with them in the spring, and in May the pots must be plunged up to the rim in the shade as before. The next winter they will require the greenhouse; and in the succeeding spring they will be two-years-old seedlings; at which time they should be shaken out of the pots, and each planted in a separate pot, in the same sort of compost in which the seeds were sown: This being done, they should be afforded a heat in the bed to set them forward. After they have begun shooting freely, the glasses should be taken off by degrees; and now they will want no more hotbeds. Watering must be given them in dry weather; and in the autumn they must be removed into the greenhouse, with other plants. And thus they should be treated as a greenhouse plant for four or five, or if even six years, it will be so much the better; observing always, however, in the spring, to shift them into a fresh and larger pot every other year. The plants being now five or six years old, and being become tolerably strong and woody, may be set out in the places where they are to remain. These, as was observed, must be warm well sheltered places, with a naturally dry soil; and if the two or three succeeding winters should prove mild and favourable, they will by that time be grown to be very hardy, and may bid defiance to almost any weather. The Common Turpentine tree and the Pistacia Nut tree, when grown old, resist our severest frosts; and the other sorts, though rather of a more tender nature, even if not old, will droop to none but the most piercing.

PLATANUS.

LINNEAN Class and Order, *Monoecia Polyandria*: Male flowers containing many stamina, and female flowers containing several pistils, upon the same plant; the males being collected in a globular catkin, and the females digested in a roundish ball. There are only two SPECIES:

1. PLA'TANUS *Orienta'lis*: The ASIATIC or ORIENTAL PLANE; *a tall deciduous tree*; native of Asia.

2. PLA'TANUS *Occidenta'lis*: The AMERICAN or OCCIDENTAL PLANE; *a tall deciduous tree*; native of North America.

1. The ORIENTAL PLANE rises to a very great height, and in its native soil grows to a prodigious size: The stem is covered with a smooth bark, which falls off annually. The bark of the young branches is

of a dark brown, inclining to a purple. The leaves are large and palmated, being deeply cut into five segments: their upper sides are of a deep green, and the under sides pale. The flowers are very minute: they come out at the same time as the leaves, which is in June. This is very late, and is no doubt a blemish to the beauty of this nevertheless highly *ornamental* tree. The Antients were very partial to this tree; which is not to be wondered at, when we consider the extensive canopy it forms, the impenetrable shade given by the number and size of its leaves, and consequently the grateful coolness it must afford in a sultry climate. EVELYN and HANBURY class this and the next species amongst Forest or Timber trees; and their wood may rank with that of the Sycamore, which bears a considerable resemblance to this genus of plants, and which in the North of England is called the *Plane Tree*.

2. The AMERICAN PLANE. This also grows to a great size; the stem not only swells to an immense thickness, but, rising erect, shoots up perfectly straight and cylindrical to an amazing height. The Hon. Paul Dudley, in a Letter to the Royal Society, says, "he observed in New England one of these Plane Trees nine yards in girth, which continued its bulk very high; containing when felled twenty-two loads of timber." The bark is smooth, and, like that of the Asiatic species, falls off annually. The leaves are broad, with long foostalks, and are cut into angles at their edges, but not divided nearly so deep as those of the foregoing species: The upper side is of a light green, the under side paler: The flowers are small, and come out with the leaves about the same time as those of the Oriental Plane. Altogether, this tree is peculiarly refreshing to the eye, and truly *ornamental*.

Besides these two distinct species, there are two *Varieties:*

The Maple-leaved Plane.
The Spanish Plane.

The *Maple-leaved Plane*, says MILLER, is certainly a seminal variety of the Eastern Plane. It differs from the two sorts beforementioned, in having its leaves not so deeply cut as those of the Eastern Plane, but much more deeply than those of the Occidental Plane. The tings; which, if they be taken from strong young wood, and planted early in the autumn, in a moist good mould, will hardly fail of succeeding. They are generally planted thick, and then removed into the nursery ground, as the layers of the other sort: But if a large piece of ground was ready, the cuttings might be placed at such a distance as not to approach too close before they were of a sufficient size to be planted out to stand; and this would save the expence and trouble of a removal. The Oriental Plane tree will grow from cuttings, but not so certainly as this; and whoever has not the convenience of proper ground for the cuttings, must have recourse to layers, which, indeed, is for either sort the most effectual and sure method.

Plane trees delight in a moist situation, especially the Occidental sort. Where the land is inclined to be dry, and Plane trees are desired, the others are to be preferred. But in moist places, by the sides of rivulets, ponds, &c. the Occidental makes such surprising progress, that it might be ranked among the Aquatics. The bright colour of the Planes gives variety to groves and masses of wood; in groups and single trees they are singularly elegant; as may be seen at Fisherwick.

POPULUS.

Linnean Class and Order, *Dioecia Octandria*: Male flowers containing eight stamina, and female flowers containing one pistil, upon distinct plants; the males and females being similarly situated in long, loose catkins. There are five Species:

1. Po'pulus *A'lba*: The Arbeel, or White Poplar; *a deciduous aquatic tree;* growing common in England and most parts of Europe.

2. Po'pulus *Ni'gra*: The Common Poplar; *a deciduous aquatic tree;* this also grows common in England and most parts of Europe.

3. PO'PULUS *Tre'mula*: The ASPEN; *a deciduous tree;* native of England and the colder parts of Europe.

4. PO'PULUS *Balsami'fera*: The BALSAM POPLAR, or TACAMAHACA; *a deciduous tree;* native of Carolina, and many parts of North America.

5. PO'PULUS *Heterophy'lla*: The VIRGINIA POPLAR; *a deciduous tree;* native of Virginia.

1. The ARBEEL. This is a tall spreading tree, one of the largest of the aquatic tribe. The trunk is covered with a smooth whitish bark. The leaves are about three inches long, and stand upon footstalks about an inch in length: they are indented at the edges; and are of a dark green on the upper surface, but white and woolly underneath.

2. The COMMON POPLAR. This tree will also grow to a large size. Its leaves are not so large as those of the former. Their colour is a pleasant green; they are heart-shaped, and appear about the middle of April.

The *Lombardy Poplar*, or the *Po Poplar*, seems to be a *Variety* of the Common Poplar: the chief difference is, the Common Poplar throws out a large spreading head, whilst the Lombardy aspires with a remarkably close one, rising like the Cypress. There is a peculiar elegance in this plant when young, and in a moist rich situation it flourishes extraordinarily; acquiring a bold outline, and strength of feature: but it will not thrive in a dry barren soil; there, soon growing stunted and mossy.

Poplars in general, whilst young, are elegant and *ornamental;* but the litter which is made by their catkins renders them in the spring disagreeable neighbours to kept walks and shruberies. The *uses* of the wood are not many: it makes good boards, which have one peculiar good quality for flooring: they can with difficulty be made to burn, and will never blaze out like those of other wood: It would be needless to add that the wood of the Poplar is the worst of fuel. It is a quick-growing tree, and may frequently be made use of as a skreen to hide swamps or other deformities.

3. The ASPEN. This tree will grow to a great height, and takes a good outline. Its leaves are smaller than those of the Common Poplar; they stand on long slender *flat* footstalks, which render it of all the other sorts the most tremulous; they are roundish, and

smooth on both sides; but do not make their appearance before the beginning of May. The profusion of suckers thrown up by this tree renders it altogether unfit for kept grounds.

The PROPAGATION of these three species of Poplar is very easy: they will grow from cuttings, sets, truncheons, &c.; but, says HANBURY, "I by no means approve of the planting of truncheons, as has been often practised on boggy places; because I have always observed, that plantations of these luxuriant trees, attempted to be raised in this manner, have been frequently stunted, and very unpromising; and that the most promising trees have never equalled, in goodness or beauty, those planted with regular trees raised in the nursery. In order, therefore, to obtain a quantity of Poplars, proper to be planted in avenues or clumps, by the sides of rivulets, bogs, or any other places where they are desired, you must get a piece of ground double dug for the nursery. If the trees wanted are to be planted for good in a watery situation, this nursery ground should be pretty near it; but if they are designed for pasture grounds, fields, or such as have no more than a common degree of moisture, the soil of the nursery should be proportionably drier. The latter end of October is the best season for planting the cuttings; though they will grow if planted in any of the winter months. They should be all of those last year's shoots which have been vigorous, or at least not older than two years wood. These cuttings should be one foot and a half in length; and must be planted in the nursery ground in rows a yard asunder, and at a foot and a half distance from one another. They should be planted a foot in the ground, while the other half must remain to send forth the leading shoot. Now in order to have one leading shoot only, in summer these plants should be carefully looked over, and all young side branches nipped off, in order to encourage the leading branch. After this, no farther care need be taken of them than keeping them clean from weeds, and digging between the rows in the winter, till they have attained a proper size to be planted out.

4. The BALSAM POPLAR will grow to be a large timber tree, "and has a majesty both enchanting and

5. The **Virginia Poplar** grows to be a large timber tree. The branches are numerous, veined, and angular. The leaves are heart-shaped, broad, slightly serrated, and downy on their first appearance. The flowers come out in loose catkins, and make little show: They appear early in the spring; and are succeeded by numerous downy seeds, which are dispersed all about to a considerable distance.

These two species are **propagated**, 1. By cuttings. In order to obtain proper cuttings for the purpose, the plants should be headed the year before, and a foot and a half of the thickest part of the former summer's shoots should be taken. The month of October is the season; and these cuttings should be planted in a moist shady soil, one foot deep, with the other half foot above ground. Many of them will grow; though it is generally allowed to be a good crop if half succeed. 2. By layers. These must be of the last summer's shoots; and the operation ought to be performed in the autumn, before they have done growing; for the sap being then in motion, they may readily be brought down; whereas, if it is deferred until winter, the young shoots are then so exceedingly brittle, that though all possible care be taken, many of them, in attempting to bring them down, will be broken. A small slit with the knife must be given to each; and after the operation is performed, some furze bushes should be stuck round each stool, to break the keen edge of the black frosts, and preserve the ends of the layers from being killed. In the spring they should be cut down to within one eye of the ground; and by the autumn they will have struck root, and be good plants, either for the nursery ground, or where they are intended to be set out to stand.

POTENTILLA.

Linnean Class and Order, *Icosandria Polygynia*: Each flower contains twenty males and many females.

There are numerous SPECIES of this genus of plants: but only one of a ligneous nature:

POTENTI'LLA *Frutico'sa:* The CINQUEFOIL SHRUB; *a low deciduous shrub;* native of Yorkshire.

The CINQUEFOIL SHRUB grows to the height of three feet; exceedingly bushy and full of wood; which renders it the less ornamental; but the size and lustre of its flowers do away that objection. The leaves are five-fold, and of a pale green colour. The flower is of a bright yellow.

The PROPAGATION of this shrub is by layers or by cuttings; the seeds, though a native of the mountainous parts of this island, seldom ripen in gardens. If the Propagation is by cuttings, the ground should be in the shade, naturally moist and well dug; and if they are planted any time in the autumn, winter, or early in the spring, they will readily grow. In the autumn or winter following, the strongest plants may be removed to the places where they are designed to remain. If the operation is performed by layering, the trouble then is only pegging down the young branches, and drawing a little mould over them: they will then readily strike root, and in the autumn or winter following, they must be taken up, trimmed and planted in the nursery way, to remain there for a year, before they are removed to the places of their final destination.

PRINOS.

LINNEAN Class and Order, *Hexandria Monogynia:* Each flower contains six males and one female. There are only two SPECIES:

1. PRI'NOS *Verticilla'tus:* The VIRGINIA WINTERBERRY, or DECIDUOUS PRINOS; *a deciduous shrub;* native of Virginia, Pennsylvania, and other parts of North America.

2. PRI'NOS *Gla'ber:* The CANADA WINTERBERRY, or EVERGREEN PRINOS; *an evergreen shrub;* native of Canada.

1. The **Deciduous Winterberry** is a shrub of about six or eight feet in growth, sending forth many branches from the bottom to the top, which are covered with a brownish bark. The leaves are spear-shaped, pretty large, of a strong green colour, lengthways serrated, and placed alternately on slender footstalks on the branches. The flowers are produced at the sides of the branches, growing one or two together at the joints; but make no show. They appear in July; and are succeeded by purple-coloured berries, which remain on the trees all winter, and look well.

The best way of PROPAGATING this plant is from its seeds. These should be sown, soon after they are ripe, in beds of fine sandy earth; and if the garden does not naturally afford such, a few barrows full of drift sand must be brought to mix with the common mould. The beds being thus prepared, and made ready for sowing, the seeds should be sown about three quarters of an inch deep. It is very seldom that any of the seeds come up the first spring after; if any do, there will be but few; so that all the summer they must be kept clean from weeds. The spring following the plants will come up; though many will lie until the third spring before they make their appearance. After they are come up, weeding and watering must be afforded them in the summer; and with this care they may remain in the seed bed two years. In March, being then two-years-old seedlings, they should be taken up, and planted in the nursery, at very small distances; and here they may remain, with the usual nursery care, until they are set out.

2. The **Evergreen Winterberry** grows to about eight or ten feet high, sends forth many branches from the bottom to the top, and the whole plant assumes the appearance of an *Alaternus*. The leaves are oblong, spear-shaped, acute, serrated, of a strong green colour, and placed alternately on the branches. The flowers come out from the wings of the leaves, two or three together on a footstalk. They are small, white, appear in July, and are succeeded by red or purple berries, which remain on the trees all winter.

The PROPAGATION of this shrub is exactly the same as that of the deciduous species, except that this species is of a more tender nature; and instead of setting out the seedlings in the nursery ground, each should be set in a separate pot, to be placed under shelter in winter for a few years, until they are grown strong plants, and after that to be turned out, with the mould at the roots, into the places where they are designed to remain, which ought always to be in a dry sandy soil and a well sheltered situation.

PRUNUS.

Linnean Class and Order, *Icosandria Monogynia*: Each flower contains about twenty males and one female. There are fifteen Species; twelve of which are here treated of; most of them well known species; including a numerous tribe of orchard, garden, and shrubery plants.

1. Pru'nus *Pa'dus*: The Padus, or Common Bird Cherry; *a low deciduous tree*; native of England, Scotland, and most parts of Europe.

2. Pru'nus *Virginia'na*: The Virginia Padus; *a low deciduous tree*; native of Virginia, Pennsylvania, and Carolina.

3. Pru'nus *Canade'nsis*: The Canadian Padus; *a deciduous shrub or tree*; native of Canada and many other parts of America.

4. Pru'nus *Maha'leb*: The Mahaleb, or Perfumed Cherry; *a tall deciduous shrub*; native of Switzerland, and the North of Europe.

5. Pru'nus *Armeni'aca*: The Apricot; *a low deciduous tree*; whose native country is unascertained.

6. Pru'nus *Ce'rasus*: The Cherry, or the Cultivated Cherry; *a deciduous tree*; native of England and most parts of Europe.

7. Pru'nus *A'vium*: The Wild Cherry; *a deciduous tree*; native of England and the North of Europe.

8. Pru'nus *Dome'stica:* The Plum; *a deciduous tree;* native of many parts of Europe.

9. Pru'nus *Insiti'tia:* The Bullace; *a deciduous tree or shrub;* native of England and Germany.

10. Prunus *Spino'sa:* The Sloe Thorn, or Black Thorn; *a deciduous shrub;* native of England and most countries of Europe.

11. Prunus *Lauro-Ce'rasus:* The Laurel, or the Common Laurel; *an evergreen shrub or tree;* native of Trebisond, near the Black Sea.

12. Pru'nus *Lusita'nica:* The Portugal Laurel; *an evergreen shrub;* native of Portugal; also of Pennsylvania and other parts of America.

1. The Common Padus, or Bird Cherry, is a tree of about twenty feet growth; oftentimes it rises higher. It grows with an upright stem, and makes a handsome appearance. The bark of the older shoots is of a dark brown, inclined to a purple colour, and is besprinkled with a few grayish spots; while the preceding summer's shoots are smoother, and of a reddish cast. The buds early in the winter will begin to swell for the future shoots. The leaves are large, and grow alternately on the branches. Their figure is nearly oblong. They are rough, and have their edges serrated. Their under surface is of a lighter colour than their upper, and they have two glandules at their base. The flowers are white, and produced in May, in long bunches. A kind of spike of white flowers grows from the sides of the branches; and these waving about on every side, in a loose and easy manner, have a genteel and pleasing effect. The flowers of which these spikes are composed stand each on their own proper pedicles, and are all arranged alternately along the main stalk, which is tolerably long. These flowers are succeded by fruit, which is a small berry, that ripens in August, at which period it will be black; but besides this, it will undergo the changes of being first green and afterwards red. When these berries are ripe, they are of a sweet disagreeable taste, but so liked by the birds (which will flock from all parts to feed on them) as to occasion its being called the Bird Cherry; and for their sake purely many persons plant a more

than common quantity of these trees, that they may have these feathered songsters in greater plenty.

There is a *Variety* of this tree, called the *Cornish Bird Cherry*, which differs from it in some respects; but these differences are inconsiderable.

2. The VIRGINIA PADUS will grow to thirty or forty feet high, and is said to afford wood of great value. The bark is of a dark brown inclined to a purple colour, and spotted irregularly with some grayish blotches. The young shoots are of a lighter colour, and very smooth; and the whole tree is more ramose than the former sort. The leaves are oval, and of a shining green colour. Their edges are serrated, and placed alternately on the branches. They stand on short footstalks, and continue on the trees late in the autumn. Their flowers are white, and produced in May, in the same sort of long bunches as the other; and are succeeded by black berries, which are equally coveted by the birds, for whose sake only this species also is frequently planted. HANBURY classes this tree amongst his Forest Trees, and says, "The wood is very valuable; is much used by the cabinet makers; will polish very smooth, and display beautiful veins, both black and white." MILLER tells us, "that the *Padus Virginiana* will grow to be a large tree when it is planted in a moist soil, but in dry ground it rarely rises more than twenty feet high." He has also a *Padus Caroliniana* (probably a *Variety* of this species), the seeds of which he says "were sent from Carolina by the title of BASTARD MAHOGANY, from the colour of the wood, which is somewhat like Mahogany." He adds, however, that "this seems to be little more than a shrub, if we may judge from the growth here."

3. The CANADA-PADUS is of much lower growth than the former sorts. The branches are smooth. The leaves are broad, spear-shaped, rough, downy, and destitute of glands, like those of the former species. The flowers grow in long, branching bunches: Their colour is white; they come out in May, and are succeeded by small, round, black berries, which will be ripe in the autumn.

4. The PERFUMED CHERRY seldom grows to be more than ten or twelve feet high. The branches are covered with a smooth, whitish gray bark. The leaves are small, of a lucid green colour, of an oval figure, and stand alternately on the branches. The flowers are white, produced in May in roundish clusters, and are succeeded by berries, of which the birds also are very fond. The wood of all these sorts is much esteemed by the cabinet makers, particularly amongst the French, as it always emits a very agreeable odour.

The APRICOT TREE is often planted as a flowering-shrub; for though it will grow to be thirty feet high, it may nevertheless be kept down to what height the owner desires. "This tree, says HANBURY, as well as most sorts of fruit-trees, is exceeded by few in ornament; for being permitted to grow in its natural state to twenty or thirty feet high, with all its luxuriancy of branches, covered with their delightful heart-shaped leaves, what a glorious figure will it present! But when we reflect on the fine appearance such a tree must make, early in the spring, when covered all over with the bloom of such fine flowers as those of the Apricot are known to be, this enhances the value; and either of these motives is sufficient for introducing these trees into plantations of this kind. Add to this, some of the sorts, in warm well sheltered situations, will produce fruit when growing in this manner, as well as if planted and trained against walls; so that additional returns will be made by the fruit to the curious planter of these trees."

6. The CHERRY TREE of our orchards is too well known, with all its Varieties, to need any description. HANBURY observes, "were the trees scarce, and with much difficulty propagated, every man, though possessed of a single tree only, would look upon it as a treasure. For besides the charming appearance these trees have, when besnowed, as it were, all over with bloom in the spring, can any tree in the vegetable tribe be conceived more beautiful, striking, and grand, than a well grown and healthy Cherry Tree, at that period when the fruit is ripe?"

The many kinds of Cherry Trees afford an almost endless *Variety*; all differing, in some respect, in their manner of shooting, leaves, flowers, or fruit: Two in particular demand admission into the pleasure garden; the Double-blossomed and the Red-flowering.

The *Double-blossomed Cherry*. The pleasing show the common Cherry Tree makes when in blow is known to all; but that of the Double-blossomed is much more enchanting. It blossoms, like the other, in May; the flowers are produced in large and noble clusters; for each separate flower is as double as a rose, is very large, and placed on long and slender footstalks, so as to occasion the branches to have an air of ease and freedom. They are of a pure white; and the trees will be so profusely covered with them, as to charm the imagination. Standards of these trees, when viewed at a distance, have been compared to balls of snow; and the nearer we approach, the greater pleasure we receive. These trees may be kept as dwarfs, or trained up to standards; so that there is no garden or plantation to which they will not be suitable. By the multiplicity of the petals the organs of generation are destroyed; so that those flowers which are really full are never succeeded by any fruit.

The *Red-flowering Cherry Tree* differs in no respect from the Common Cherry Tree, only that the flowers are of a pale red colour, and by many are esteemed on that account.

Besides the *ornament* and utility afforded us by the flowers and fruit of the Cherry, its *timber* is a farther inducement for propagating it; more especially that of the small *Black Wilding* sort; which may perhaps with propriety be considered as the genuine species, and a native of this island. Be this as it may, it will grow, in a soil and situation it affects, to be a large timber tree, which, if taken in its prime before it become tainted at the heart, will turn out perhaps not less than a ton of valuable materials, peculiarly adapted to the purposes of furniture. The grain is fine, and the colour nearly approaching to that of mahogany, to which valuable wood it comes nearer than any other which this country produces.

7. The WILD RED CHERRY is a very large grow-tree, and may like the Black Wilding be an object

for timber. The leaves are oval, spear-shaped, and downy underneath. The flowers come out from the sides of the branches in sessile umbels. They appear rather later than the cultivated sorts; and are succeeded by small red fruit, which ripens late in the autumn. This is often called the Wild Northern English Cherry.

8. The PLUM TREE, with all its Varieties, is so well known as to require no description. No one need be told, that the Plum Tree is a large growing tree, and that it has a beautiful appearance in spring when in blow. The fruit that succeeds the blossom is of many colours, shapes, and sizes; and the trees of the variety of sorts will be so adorned with them in the autumn, as to have a noble look and delightful effect, being hardly exceeded by the Cherry itself. These are seldom planted anywhere except in orchards; but let them be set where they will, they never fail to repay the owner with pleasure and profit.

The *Varieties* which are principally eligible for Ornamental Plantations are, The Cherry Plum Tree, the Double-blossomed, the Stoneless, the Gold-striped, and the Silver-striped Plum.

The *Cherry Plum Tree* is always planted among flowering shrubs, on account of its early flowering. It may be kept down to any height; and the flowers will be produced in March, in such plenty, and so close, as almost to cover the branches. It is admired by all for the early appearance of its flowers, which are succeeded, after a mild spring, by a round reddish plum on a long slender footstalk, that has the resemblance of a Cherry. Unless there is little or no frost after these trees have been in blow, it rarely happens that any fruit succeeds the flowers.

The *Double-blossomed Plum Tree* is another Variety. The flowers of this sort are exceedingly double, and the twigs will be richly furnished with them in the month of May. Their petals, like those of the Cherry, are of a pure white, though amongst these some filaments with darkish antheræ appear. As soon as the show of flowers is over, we are not to give up all expectations from this tree; for many of them will be succeeded by fruit, which is of the same colour, shape, and taste, with the common Damascene, though smaller, and is liked by many.

The *Stoneless Plum*. This is a Variety that should be admitted on no other account than because the pulp surrounds a kernel, without having any stone. It is a small blue plum; and those people who have it in possession, take a pleasure in shewing it as a curiosity.

The *two Striped sorts* make a Variety by their variegated leaves; on which account they are frequently sought after by the curious.

9. The BULLACE TREE is sometimes planted in shrubery quarters, for the sake of the fruit; which by many persons is deemed very agreeable, being possessed of a fine acid. It ought to be pulled and eaten immediately from the tree.

The *Varieties* of this species are, The *Black*, the *White*, and the *Red Bullace*.

10. The SLOE TREE. The Sloe Bush is, without all doubt, a species distinct from either Plum or Bullace. And indeed it is such a species, that, were it not for its commonness it would be thought inferior in beauty to none of our shrubs. The commonness of this tree, however, causes its beauties to be unnoticed, and forbids us to admit too many into our collection, and its suckers are another objection to it.

11. The COMMON LAUREL will grow to about thirty feet, and the leaves, which are sometimes five or six inches long and three broad, being likewise of a firm structure even at the edges, garnish the branches of the tree in such a manner as would excite our admiration, did not the frequency of this noble plant diminish our respect. The Laurel however will, we apprehend, ever preserve its rank as a *Stock Plant* in shruberies and other *ornamental* grounds. EVELYN places the Laurel among Forest Trees; and HANBURY speaks of the *uses* of its timber to the turners and cabinet makers. It seems peculiarly adapted to the purpose of ORNAMENTAL UNDERWOOD; as it is of quick growth, and will flourish under the drip and shade of other trees.

The Common Laurel affords two *Varieties*: The *Gold-striped* and *Silver-striped* Laurel.

12. The PORTUGAL LAUREL is a lower growing tree than the former; and though its leaves, flowers, &c. are proportionally smaller, it is thought by many to be much the most beautiful; the commonness of the one, and scarcity of the other, may perhaps not a little contribute to this opinion. The Portugal Laurel will grow to be fifteen or twenty feet high, accordingly as the soil in which it is placed contributes to its increase. The branches are produced in an agreeable manner, being chiefly inclined to an upright posture; and the young shoots are clothed with a smooth reddish bark. The leaves are smooth, and of a fine strong green colour, though their under surface is rather paler than the upper. They are much smaller than those of the Common Laurel, are of an oval figure, and have their edges serrated; they are of a thick consistence, and justly entitle the tree to the appellation of a fine Evergreen. The flowers are produced in the same manner as those of the Common Laurel, but are smaller. They are white, appear in June, and are succeeded by berries, which when ripe are black; though before they will undergo the different changes of being first green and then red.

The PROPAGATION of the several tribes of *Prunus* varies with the respective species.

The species and varieties of PADUS, or BIRD CHERRY, may be raised, 1. From seeds, sown in autumn, in beds of light earth, about half an inch deep. The plants will appear the first spring, and the spring following they may be planted out into the nursery, at the distance of two feet by one; in which situation they may remain until wanted for planting out. 2. This class may also be propagated by layers; the young twigs, being simply laid in the ground, will without any other trouble strike root in one year, and may be taken up and transplanted into the nursery, or be planted where they are to remain, as circumstances may suit. 3. These trees will also grow from cuttings, planted in October, in a moist situation: if the spring and summer prove dry, they will require to be watered.

This class of *Prunus* affects a moist situation.

The PERFUMED CHERRY is PROPAGATED by grafting, or by budding upon any of our Cherry stocks.

The APRICOT TREE is PROPAGATED by budding it upon the Plum stock.

The FRUIT-BEARING, DOUBLE-BLOSSOMED, and RED-FLOWERING CHERRY TREES are PROPAGATED by grafting upon stocks raised from the stones of the Black Cherry Tree; though it may be proper to observe here, that when the Double-blossomed Cherry is wanted to be kept very low, in its dwarf state, the Common Bird Cherry will be a much more proper stock to work it upon, as that sort is naturally of much lower growth than the Black Cherry Tree

The PLUM TREE, in all its varieties, and the Bullace Tree, the Cherry Plum, the Double-blossomed Plum, and the Stoneless Plum, are PROPAGATED by grafting upon Plum stocks raised from seeds; though it is observable, that suckers of the Bullaces will grow to be trees, and pruduce plenty of good fruit; but these will not be so good as those grafted on the Plum stocks.

The SLOE BUSH may be obtained from the places where they grow; for from thence a sucker or two may be taken, and planted for the conveniency of observation: but these will not be so good as those raised from the stones.

The COMMON LAUREL is PROPAGATED either from seeds or from cuttings. 1. If the former method is practised, the seeds must be gathered from the trees when they are full ripe: This will be known by their being quite black, which is generally about the beginning of October. These seeds should be sown directly in beds of light earth, half an inch deep, which must be afterwards hooped over, to be covered in very severe frosts. A hedge of furze bushes also should be made around them, to break the force of the freezing black winds, and secure the seeds, together with the mats, from being destroyed. This is a much safer method than covering the beds with litter, which, if neglected to be taken off when the frost is over, will retain the rains which generally succeed such weather, sodden the beds, and make them so wet as frequently to destroy the whole of the expected crop. The seeds being sown, and preserved with the above care, will appear in the spring. During the summer they should be kept clear of weeds, as well as watered in dry weather; and all the ensuing winter they must remain untouched in their beds, the furze hedge still standing till the frosty weather is past; for if these young seedlings are planted out in the autumn, the major part of them will be in danger, before the winter be expired, of being thrown out of the ground by the frost; and not only so, but of being really killed by it, as they are not very hardy at one year old. In the spring, therefore, when the bad weather is ceased, let them be planted out in the nursery ground, in rows two feet asunder, and the plants a foot and a half distant in the rows; where they may stand till they be finally planted out. 2. Trees raised from seeds generally grow more upright, and seldom throw out so many lateral branches as those reared from cuttings; nevertheless, as the expectation of a crop from seeds has so often failed, notwithstanding great care has been used; and as the difficulty of procuring the seeds, and preserving them from the birds, has been very great; the most certain and expeditious method of raising quantities of these trees is by cuttings, and is as follows: In the month of August the cuttings should be gathered, about a foot and a half in length. They will thrive the better for having a bit of the last year's wood at the end, though without this they will grow exceedingly well. The under leaves should be cut off a foot from the thick end of the cuttings, which must all be planted about a foot deep in the ground; the other half foot, with its leaves, being above it. No distance need be observed in planting these cuttings, which may be set as thick as you please, though the ground for raising them should be sheltered, lest the winds, which are frequently high at this time of the year, or soon after, loosen the plants just when they are going to strike root. The weather when the cuttings are to be planted should be either rainy or cloudy; and if no showers should fall in August, the work must be deferred till they do; for if cuttings are planted in August, when the weather is parching and dry, they will be burnt up, without great care and trouble in shading and watering. Neither is cloudy or rainy weather only to be recommended in planting these cuttings, but a shady situation also, either under a north wall, or in beds which are covered the greatest part of the day with the umbrage of large trees. This shady situation is very necessary for them; since, though the weather be rainy and cloudy when they are planted, yet should it prove fair afterwards, the sun will soon dry up the moisture at that season, and endanger the plants, if they are not constantly watered and protected with a shade; which at once shews the expediency of pitching on a spot where such a conveniency is natural. If these cuttings are planted in August, they will have taken root before winter, especially if they have shade and water in dry weather; but they should remain undisturbed till the spring twelvemonth following, in order to acquire strength to be planted in the nursery. During the summer, they will require no other trouble than watering in dry weather, and being kept clean from weeds; and by the autumn they will have made a shoot of perhaps a foot or more in length. In the beds nevertheless, they may remain until the spring, when they should be all carefully taken out, and planted in the nursery, as was directed for the seedlings.

The Common Laurel may be transplanted, at Midsummer, with safety, and great success.

The PORTUGAL LAUREL is to be raised the same way as the Common Laurel, by *seeds* and *cuttings;* but the cuttings of the Portugal Laurel do not take so freely as those of the Common sort; and the young practitioner, out of a good bed of cuttings, must expect to see but a few real plants succeed. If they are planted in July or August, they must be shaded, and kept moist during the hot weather; and that will be the most probable way to ensure success. If a person has the conveniency of a good stove, the best method is not to plant them until the spring; and then many cuttings may be planted in one pot, and afterwards plunged into the bark bed; and by this means numerous plants may easily be obtained.

Neither of the Laurels can bear a very wet situation; and both of them are liable to be injured by severe frost.

PTELE'A.

LINNEAN Class and Order, *Tetrandria Monogynia.* Each flower contains four males and one female. There are only two SPECIES; one of them introduced into our shruberies; the other a late discovery.

PTELE'A *Trifolia'ta:* The THREE-LEAVED PTELEA, or the TREFOIL; *a deciduous shrub;* native of Virginia and Carolina.

The PTELEA will grow to the height of ten feet. The branches are not very numerous; when broken, they emit a strong scent: They are brittle, full of pith, and covered with a smooth purplish bark. The leaves are trifoliate, and grow irregularly on the branches, on a long footstalk. The folioles are oval, spear-shaped, of a delightful strong green colour on their upper side, lighter underneath, smooth, and pretty large when they are fully out, which will not be before part of the summer is elapsed; for they put out late in the spring. The flowers are produced in bunches, at the ends of the branches: Their colour is a greenish white. They come out in June; and are succeeded by roundish bordered capsules; but the seeds seldom ripen in England.

This shrub may be PROPAGATED either by seeds, layers, or cuttings. 1. By seeds. These should be sown in a warm border, in the spring, in common garden mould made fine; and if the seeds are good, they will grow and come up the first summer. We generally receive the seeds from abroad; though they will in some warm seasons ripen here with us. When the young plants begin to come up, which will be, if the seeds are good, by the end of May, they should be shaded, and every second evening duly watered; and this, together with constant weeding, will be all the care they will require until the autumn. At the approach of winter it will be proper to prick some furze bushes round the bed, to break the keen edge of the black frosts. They will then require no other trouble until the second spring after they are come up; when they should be all taken out of the seed bed, and planted in the nursery, a foot asunder; and in two or three years they will be fit to be finally planted out. 2. By layers. For this purpose a number of plants must be planted for stools; and, after they have stood a year or two, these should be cut down pretty near the ground. By the autumn they will have made shoots, some of which will be five or six feet, or more, in length; and these are the shoots for layering. October is the best month for the work; and the operation is to be performed by cutting the twig half through, and making a slit half an inch long. Any thing may be put into this slit, to keep it open; and after the mould is levelled all round, the longest ends should be taken off. By this method they will generally have good roots by the autumn following; and the stools will have shot out fresh wood for a second layering. At this time they should be taken up, and the weakest planted in the nursery, to get strength; whilst the stronger layers will be good plants to set out to stand. After this, the operation may be again repeated, and so continued annually, at pleasure. 3. By cuttings. In order to obtain plenty of good cuttings, the plants should be headed as for layering. In October the young shoots should be taken off, and cut into lengths of a little more than a foot, two thirds of which should be set in the ground. Some of these cuttings will grow; though, says HANBURY, I ever found this way very uncertain, and not worth the practising: But if the cuttings are planted in pots, and assisted by artificial heat, they will grow readily. This, however, is not a good method; for they will be tender the first winter, as well as require to be protected in the greenhouse, or under some cover, which will occasion more trouble than if they had been layered. By layers and seeds, therefore, are the best and most eligible methods of encreasing these trees.

PUNICA.

LINNEAN Class and Order, *Icosandria Monogynia:* Each flower contains twenty males and one female. There are two SPECIES ; the one a greenhouse plant ; the other

PU'NICA *Grana'tum:* The COMMON POMEGRANATE ; *a tall deciduous shrub;* native of Spain and the South of Europe.

"The POMEGRANATE," says MILLER, "rises with a woody stem eighteen or twenty feet high ; sending out branches the whole length, which likewise put out many slender twigs, so as to render them thick and bushy."

There is a *Variety* with *double flowers.*

These plants may be PROPAGATED by laying down their branches in the spring, which, says MILLER, in one year's time will take good root, and may be transplanted where they are designed to remain.

PYRUS.

LINNEAN Class and Order, *Icosandria Pentagynia:* Each flower contains about twenty males and five females. There are eleven SPECIES : four of which are as follow :

1. PY'RUS *Commu'nis:* The PEAR ; a well known *deciduous tree* ; native of most parts of Europe.

2. PY'RUS *Ma'lus* : The APPLE ; an equally well known *deciduous tree;* native also of most parts of Europe.

3. PY'RUS *Corona'ria:* The SWEET SCENTED CRAB ; *a deciduous tree ;* native of Virginia.

4. PY'RUS *Cydonia:* The QUINCE; *a deciduous shrub or tree:* native of the Banks of the Danube.

¶ 1. The PEAR. Of the numerous *Varieties* of this species of *Pyrus* there are two admissible into ornamental grounds:

The Double-blossomed Pear.
The Twice-flowering Pear.

The *Double-blossomed Pear* differs from the other sorts only in that the flowers are double. The leaves, indeed, are not so much serrated as some of the other Pears; nay, scarcely any serratures appear, excepting on the oldest leaves; for the younger are perfectly entire and downy. The multiplicity of the petals of this flower is not sufficient to entitle it to the appellation of a full flower; for it consists only of a double row of petals; but as these are all large, produced in clusters, and of a pure white, they entitle the tree to be called a flowering tree, with greater propriety than the ordinary Pears can be so styled. The planter of this species is rewarded in a double respect; for as the petals are not multiplied in so great a degree as to destroy the stamina, the flowers are succeeded by a good fruit, whose properties are such as entitle it to the rank of a good baking Pear.

The *Twice-flowering Pear.* This species is sufficiently described by the title; it being a Pear that often produces flowers in the autumn, when the fruit that succeeded those of the spring are nearly ripe. This tree deserves to be planted both for its beauty and singularity; for it sometimes happens, though by no means constantly, that it is covered over in September with bloom and fruit. This autumnal bloom falls away, and the chilling cold often prevents its coming to any embryo fruit.

2. The APPLE. This species likewise affords us two ornamental *Varieties:*

The Paradise Apple,
The Fig Apple.

The *Paradise Apple* is rather a shrub than a tree. There are two sorts of it, which Gardeners distinguish by the names of the French and the Dutch Paradise Apple. They are both low growing trees; and the only difference between them is, that the Dutch sort is rather the strongest shooter. They are chiefly used for stocks to graft apples upon, in order to make them more dwarfish; so that a plant, or two in a collection, for the sake of variety, will be sufficient.

Fig Apple has a place here for no other reason than its being destitute of the most beautiful parts of which the flowers are composed; viz. the petals: They have all the stamina, &c. but no petals; which is a singular imperfection; though by many they are coveted on that account. As the stamina and other parts are all perfect, the flowers are succeeded by a tolerably good eating Apple; for the sake of which this tree deserves to be propagated.

3. The SWEET-SCENTED CRAB of VIRGINIA differs from our Crab in the leaves, flowers, and fruit. The leaves are angular, smooth, of a fine green colour, and have a look entirely different from any of our Crabs or Apples. The flowers stand on larger footstalks than those of the generality of our Crabs, and are remarkable for their great fragrance. This tree is seldom in full blow before the beginning of June. The flowers, when they first open, are of a pale red, though the petals soon after alter to a white colour. They are succeeded by a little round Crab, which, of all others, is the sourest, roughest, and most disagreeable, that can be put into the mouth.

There is a *sub-evergreen Crab* of America, supposed to be a *Variety* of this Species. Its natural growth seems to be not more than twelve feet; and the branches are covered with the same kind of smooth brown bark as our common Crab Tree. The leaves are long and narrow, and will often be found of different figures; for though some will be angular, others again are oblong, or of a lanceolate figure. They are fine, smooth, of a strong dark green colour, and have their edges regularly serrated. They will remain until late in the spring, which rather entitles this shrub to a place here; though in an exposed situation, the ends of the branches will be often stripped of those ornaments, after a few ruffian attacks of the piercing northern blasts: So that this tree, when considered as an evergreen, should always be planted in a well sheltered place, and by this method all the sorts of Pears and Apples are propagated.

The PARADISE APPLE is generally raised by layers or cuttings; and all the sorts of QUINCES grow readily by cuttings, planted any time in the winter; though the early part of that season is to be preferred.

The *Evergreen Crab* will take by grafting or budding on the common Crab or Apple stock: but great care and nicety of execution is requisite in performing the operation: Budding towards the latter end of July, HANBURY says, he has always found to be the most certain method.

QUERCUS.

LINNEAN Class and Order, *Monoecia Polyandria*: Male flowers containing many stamina, and female flowers containing one pistil, upon the same plant. There are thirteen SPECIES.

1. QUE'RCUS *Ro'bur*: The ENGLISH OAK; a well known *tall deciduous tree;* native of England; and is found in most parts of Europe.

2. QUE'RCUS *Phe'llos*: The WILLOW-LEAVED OAK; *a deciduous tree;* native of most parts of North America.

3. QUE'RCUS *Pri'nus*: The CHESNUT-LEAVED OAK; *a deciduous tree;* native of most parts of North America.

4. QUE'RCUS *Ni'gra*: The BLACK OAK; *a low deciduous tree;* native of North America.

5. QUE'RCUS *Ru'bra*: The RED OAK; *a tall deciduous tree;* native of Virginia and Carolina.

6. QUE'RCUS *Al'ba*: The WHITE OAK; *a deciduous tree;* native of Virginia.

7. QUE'RCUS *E'sculus*: The ITALIAN OAK, or the CUT-LEAVED ITALIAN OAK; *a low deciduous tree;* native of Italy, Spain, and the South of France.

8. QUE'RCUS *Æ'gilops*: The SPANISH OAK, or OAK WITH LARGE ACORNS AND PRICKLY CUPS; *a tall deciduous tree;* native of Spain.

9. QUE'RCUS *Ce'rris*: The AUSTRIAN OAK, or the OAK WITH PRICKLY CUPS AND SMALLER ACORNS; *a deciduous tree;* native of Austria and Spain.

10. QUE'RCUS *Su'ber:* The CORK TREE; a *low evergreen tree;* native of the southern parts of Europe.

11. QUE'RCUS *I'lex:* The ILEX, or COMMON EVERGREEN OAK; *a low evergreen tree;* native of Spain and Portugal.

12. QUE'RCUS *Cocci'fera:* The KERMES OAK; *a tall evergreen shrub;* native of France and Spain.

13. QUE'RCUS *Molu'cca:* The LIVE OAK; *a low evergreen tree;* native of America.

1. The ENGLISH OAK will grow to great stature, and live to a great age. EVELYN, whose learning and industry are evident in every page of his elaborate work, fatigues us with a tedious account of large trees which either were growing in his time, or which he found in the mouth of tradition, or in the pages of learning and history. We could rather however refer our readers to this detail than either copy or abridge it; confining ourselves to a few individuals of our own time, which now are (or were very lately) actually standing in this kingdom. The COWTHORP OAK, now growing at Cowthorp, near Wetherby in Yorkshire, has been held out as the *father* of the forest. Dr. HUNTER of York, in his brilliant edition of Mr. EVELYN's book, has favoured us with an engraving of this tree; the dimensions of which, as he justly observes, "are almost incredible." Within three feet of the surface, the Doctor tells us, "it measures sixteen yards, and close to the ground, twenty-six yards. Its height in its present ruinous state (1776) is about eighty five feet, and its principal limb extends sixteen yards from the bole. Throughout the whole tree the foliage is extremely thin, so that the anatomy of the antient branches may be distinctly seen in the height of summer. When compared to this, all other trees (the Doctor is pleased to say) are but *children* of the forest." If indeed the above admeasurement might be taken as the dimension of the *real stem,* its size would be truly enormous, and far exceed that of any other Oak in the kingdom; but the Cowthorp Oak has a short stem, as most *very* large trees it is observable have, spreading

wide at the base, the roots rising above the ground like so many buttresses to the trunk, which is not like that of a tall stemmed tree, a cylinder, or nearly a cylinder, but the frustum of a cone. Mr. MARSHAM gives us a plain and accurate account of this tree: He says, "I found it in 1768, at four feet, forty feet six inches; at five feet, thirty six-feet six inches; and at six feet, thirty-two feet one inch." Therefore in the principal dimension, *the size of the stem*, it is exceeded by the BENTLEY OAK; of which the same candid observer gives the following account: "In 1759 the Oak in Holt Forest, near Bentley, was, at seven feet, thirty-four feet. There is a large excrescence at five and six feet that would render the measure unfair. In 1778 this tree was increased half an inch, in nineteen years. It does not appear to be hollow, but by the trifling increase I conclude it not sound." Extraordinary, however, as these dimensions may appear, they are exceeded by those of the BODDINGTON OAK; a tree which we believe does not appear anywhere upon record, except it be alluded to in Mr. EVELYN's List. This Oak grows in a piece of rich grass land, called the Old Orchard Ground, belonging to Boddington Manor Farm, lying near the turnpike road between Cheltenham and Tewksbury, in the Vale of Glocester. The stem is remarkably collected and snug at the root, the sides of its trunk being more upright than those of large trees in general; nevertheless its circumference at the ground as near to it as one can walk, is twenty paces: measuring with a two foot rule, it is somewhat more than eighteen yards. At three feet high it measures forty-two feet, and at its smallest dimensions, namely, from five or six feet high, it is thirty six-feet. At about six feet it begins to swell out larger; forming an enormous head, which heretofore has been furnished with huge, and in all probability extensive arms. But age and ruffian winds have robbed it of a principal part of its grandeur; and the greatest extent of arm at present (1783) is eight yards, from the stem. From the ground to the top of the crown of the trunk is about twelve feet; and the greatest height of the branches, by estimation, forty-five feet. The stem is quite hollow; being, near the ground, a perfect shell; forming a capacious well sized room; which at the floor measures, one way, more than sixteen feet in diameter. The hollowness, however, contracts upwards, and forms itself into a natural dome, so that no light is admitted except at the door, and at an aperture or window in the side. It is still perfectly alive and fruitful, having this year a fine crop of acorns upon it. It is observable in this (as we believe it is in most old trees), that its leaves are remarkably small; not larger, in general, than the leaves of the Hawthorn.

In contemplating these wonderful productions of nature, we are led to conjecture the period of their existence. Mr. MARSHAM, in his Paper published in the First Volume of the Transactions of the Bath Agriculture Society, has given us some very ingenious calculations on the age of trees; and concludes that the Tortworth Chesnut is not less than eleven hundred years old. We have however shewn under the Article CHESNUT, that Mr. MARSHAM is mistaken in the dimensions of that tree. Nevertheless, if it stood in the days of King John, six centuries ago, and was then called the Great Chesnut,* we may venture to suppose it not much less than one thousand years of age: and farther, if we consider the quick growth of the Chesnut compared with that of the Oak, and at the same time the inferior bulk of the Tortworth Chesnut to the Cowthorp, the Bentley, and the Boddington Oaks; may we not venture to infer that the existence of these truly venerable trees commenced some centuries prior to the era of Christianity?

The root of the Oak strikes deep, especially the middle or tap root, which has been traced to a depth nearly equal to the height of the tree itself; nor do the lateral roots run so shallow and horizontal as those of the Ash and other trees; but perhaps the roots of very few trees range wider than those of the Oak. The stem of the Oak is naturally short, and if left to itself, in an open situation, it will generally feather to the ground. It has not that upright tendency as the Ash, the Esculus, and the Pine tribe; nevertheless, by judicious pruning, or planting in close order, the Oak will acquire a great length of stem; in this case, however, it rarely swells to any considerable girt. Mr. MARSHAM indeed mentions one in the Earl of Powys's Park near Ludlow, which in 1757 measured, at five feet, sixteen feet three inches, and which ran quite straight and clear of arms near or full sixty feet. But, as has before been observed, Oaks, which endure for ages, have generally short stems; throwing out, at six, eight, ten, or twelve feet high, large horizontal arms; thickly set with crooked branches; terminating in clubbed twigs; and closely covered with smooth glossy leaves; forming the richest foliage; irregularly swelling into the boldest outline, we know of in nature. The Pine tribe and the Esculus may be called elegant or beautiful; but the general assemblage of a lofty full furnished Oak might be termed sublime.

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* As Tradition says it was.

It is somewhat extraordinary, that the most *ornamental* tree in nature should, at the same time, be the most *useful* to mankind. Its very leaves have been lately found to be of essential use to the Gardener; the Husbandman is well acquainted with the value of its acorns; and every Englishman experiences daily the useful effects of its bark. It is wholly unnecessary to mention the value of its timber: it is known to the whole world. The Oak raised us *once* to the summit of national glory: and *now* we ought to hold in remembrance that our existence as a nation depends upon the Oak. If therefore our forefathers, merely from the magnitude and majesty of its appearance, the veneration due to its age, and gratitude perhaps for some few economical uses they might apply it to, paid divine honours to this tree; how much more behoves it us, circumstanced as we are, to pay due homage to this our national saviour? How could our Kings be invested with the ensigns of royalty, or our Creator receive at stated times the gratitude and praise which we owe to him, with greater propriety than under the shadow of this sacred tree? Acts like these would stamp it with that respectabilty and veneration which is due to it. To corroborate these ideas as well as to institute such laws as might be found necessary, the state of the growth of Oak in Great Britain ought to be a standing enquiry of the British Legislature. It is far from being impracticable to have annual returns of Oak fit for ship-building in every parish in the kingdom; with the distance it stands from water carriage. It avails but little our making laws of police, or forming foreign alliances, unless we take care to secure in perpetuity the defence of our own coast. It is idle to think of handing down to posterity a national independency, if we do not at the same time furnish them with the means of preserving it,

The PROPAGATION of the ENGLISH OAK. Having, under the Title WOODLANDS, given directions for raising *Woods* and *Groves* of OAK, it remains to treat of it, here, merely as a *Nursery plant*. There are various opinions about the *choice of acorns*: *Authors* in general recommend those of "fair, straight, large and shining trees;" but *Nurserymen*, we believe, pay little attention as to the tree from which the acorns are gathered. And indeed, when we consider that the seeds of the distinct *Varieties* of any individual species of plants produce one and the same seedling stock, or a similar Variety of seedling plants, we must conclude that little attention is due. If however it be true, that the seeds of some *Varieties* produce *more* of its own kind than those of other *Varieties* of the same species, it may be worth the trouble, when only a small quantity of seed is wanted, to gather it from the most valuable tree. The *preservation of Acorns* is extremely difficult: if we sow them in autumn, they become obnoxious to vermin and birds: if we keep them above ground, it is very difficult to prevent their sprouting, and at the same time preserve their vegetating power. Upon the whole, the fall of the Acorn seems the properest *time of sowing*. For spring-sowing, February and March are the proper months. The usual *method of sowing* is either in drills, or promiscuously in beds, covering them about two inches deep. But we would rather recommend placing them in beds in the quincunx manner, from four to six inches apart, covering them one half to two and a half inches deep, according to the stiffness or lightness of the soil. Sowing seeds in drills renders them peculiarly obnoxious to mice and rooks; and by scattering them promiscuously the plants are liable to come up double and irregularly, and the use of the hoe is precluded. The oakling rises the first spring after sowing. The seedling plants, having stood two years in the seed bed, should be removed into the nursery, placing them in rows from two and a half to three feet asunder, and the plants from nine to twelve inches in the rows; the tap root and all long sprawling fibres having been first taken off, and the top trimmed to a switch, if tolerably straight, or, if deformed or maimed, cut down within two or three inches of the ground; remembering to sort the plants as directed in the Introductory part of our work. Having remained two or three years in the nursery, they will be ready to be planted out into fenced plantations. Such as are wanted to be trained for standards, may be removed into some vacant ground; first pruning them in the conoidic manner, and afterwards remembering from time to time to pay proper attention to their leaders.

The English Oak admits of some *Varieties:* indeed, if we attend minutely to particulars, we shall find them almost infinite. There is one Variegation under the name of the *Stripe-leaved Oak:* But the most interesting Variety of the English Oak is the *Lucombe* or *Devonshire Oak*. In the Sixty-second Volume of the Philosophical Transactions, a particular account is given of this Oak; setting forth that Mr. LUCOMBE, a Nurseryman near Exeter, having, about the year 1765, sowed a parcel of acorns saved from a tree of his own growth, and observing that one of the seedling plants preserved its leaves through the winter, he paid particular attention to it, and propagated, by grafting, some thousands from it. Its being a sub-evergreen is not the only peculiarity of this Variety; it has a somewhat more upright tendency, and seems to be of a quicker growth, than Oaks in general. The plants however, which we have seen, do not answer altogether the description given in the account abovementioned; but as they are now in the hands of almost every Nurseryman, we forbear saying any thing further respecting them.

2. The WILLOW-LEAVED OAK will grow to be a large timber tree. It receives its name from its leaves resembling very much those of the Common Willow. These long narrow leaves have their surface smooth,

often found ten inches long, and five or six broad: They are obtusely sinuated, and are of a fine green colour in the first part of the summer, but afterwards change by degrees to red, which is mark enough to know these trees to be of this species. There are several Varieties of this tree, which exhibit a manifest difference in the size of the leaves, acorns, and cups. That is the best which is commonly called the *Virginian Scarlet Oak*; and the bark is preferred for the tanners use before that of all the other sorts.

6. The WHITE OAK. The White Oak will not grow to the size of the former, it seldom being found higher than forty feet even in Virginia, where it grows naturally. But though the timber is not so large, yet it is more durable, and consequently of greater value for building to the inhabitants of America, than any of the other sorts. The branches of this tree are covered with a whitish bark; the leaves also are of a light colour. They are pretty large, being about six inches long and four broad. They have several obtuse sinuses and angles, and are placed on short footstalks.

There is a *Variety* or two of this species; and the acorns are like those of our Common Oak.

7. The ITALIAN OAK will grow to about the height of thirty feet. The branches are covered with a dark purplish bark. The leaves are smooth, and so deeply sinuated as to have some resemblance of pinnated leaves; and each has a very short footstalk. The fruit of this species sits close to the branches. The cups are in some degree prickly and rough, and each contains a long slender acorn, that is eatable. This (says HANBURY) is the true *Phagus* of the Greeks, and the *Esculus* of Pliny. In the places where these trees grow naturally the acorns are, in times of scarcity, ground into flour, and made into bread.

8. The SPANISH OAK will grow to be as large a tree as our Common Oak, and is no way inferior to it in stateliness and grandeur; for the branches will be far extended all around, causing, with the leaves, a delightful shade. Though the bark of these branches is of a whitish colour, yet they are nevertheless spotted with brownish spots. The leaves are of an oblong oval figure, but not very long, seldom being longer than

three inches, and two broad. They are smooth, and have their edges deeply serrated: These serratures are acute, and chiefly turn backwards. Their upper surface is of a fine light green colour, and their under of an hoary cast; and with these beautiful leaves each branch is plentifully ornamented all over the tree. The cups are most peculiar and singular; for they are very large, and composed of several rough, black, large scales, that lap over one another like the scales of a fish. They almost cover the acorn, though they are pretty large, narrow at the bottom, but broader, higher, and have their tops flat. The Greeks call the acorns *Velani*, and the tree itself *Velanida*. The acorns are used in dyeing.

9. The AUSTRIAN OAK is of lower growth than the preceding species, it seldom rising to more than forty feet high. The leaves are of two colours; their upper surface being of a fine green colour, and their under downy. Their figure is oblong; but they are so indented about the middle, as to make them have the resemblance of a lyre. They are wing-pointed, transversely jagged, and stand on slender footstalks on the branches. The cups of this sort also are smaller and prickly, and the acorns also proportionally smaller than those of the preceding species.

All these foreign deciduous sorts may be PROPAGATED from the acorns, which must be procured from the places where the trees naturally grow. They should be sown as soon as possible after they arrive; and if any of them are sprouted, great care must be used in taking them out of the boxes in which they were conveyed. Any sort of our common garden mould, made fine, will suit them; and they should be sown in drills, in beds an inch deep. The first spring after sowing, the plants will come up; they should be always kept clean from weeds, and if they are watered in dry weather, it will be the better. They will want no preservation in winter, for they are all very hardy, even when young. In March they should be all taken out of the seed bed, have their tap roots shortened, and be planted in the nursery ground a foot asunder, and two feet distant in the rows, where they may stand, with the usual nursery care, until they are to be planted out.

The STRIPED-LEAVED OAK is usually PROPA-

GATED by inarching into the Common Oak; but it is best increased by grafting. In the same manner, also, any particular Variety belonging to the other species may be continued and multiplied.

EVELYN says, "the Oak will endure the LAYING, but never to advantage of bulk or stature."

10. The CORK TREE admits of two *Varieties:*

The Broad-leaved Cork Tree.
The Narrow-leaved Cork Tree.

The *Broad-leaved Cork Tree* is a timber tree in Portugal and Spain, and other southern parts of Europe, where it grows naturally. In our present plantations, it should be placed near the middle of our largest quarters, among others of about forty feet growth; and a few, also should be planted singly in opens, that its fungous bark may be in view: not that there is any great beauty merely in the sight, but with us it is a curiosity; being the true Cork, and is of the same nature with what comes from abroad, and we use for bottles, &c. Thus rough and spongy is the bark on the trunk and main branches; but the bark on the young shoots is smooth and gray, and that on the youngest white and downy. The leaves are of an oblong, oval figure, with sawed edges. Their upper surface is smooth, and of a strong green colour, but their under is downy. They grow alternately on the branches, on very short though strong footstalks, and indeed differ in appearance very little from many sorts of the *Ilex*. As the flowers of the *Quercus* make no show, we shall proceed to the next sort, after observing, that the acorns of the Cork Tree are longish, smooth, and brown when ripe, and of the size and shape of some of our common acorns, to which they are so much alike, as not to be distinguished, if mixed together.

The *Narrow-leaved Cork Tree* is a Variety only of the common and most general sort; so that, as this article requires nothing more than observing that the leaves are smaller, and as such make a variety in plantations, it may not be amiss to say something of the Cork, which we receive from abroad, and which is collected from these trees. The best cork, then, is taken from the oldest trees, the bark on the young trees being too porous for use. They are, nevertheless, barked before they are twenty years old; and this barking is necessary, to make way for a better to succeed; and it is observable, that after every stripping the succeeding bark will increase in value. They are generally peeled once in ten years, with an instrument for the purpose; and this is so far from injuring the trees, that it is necessary, and contributes to their being healthy; for without it they thrive but slowly: nay, in a few years they will begin to decay, and in less than a century a whole plantation will die of age; whereas those trees that have been regularly peeled will last upwards of two hundred years. "Wonderful, then, is the wisdom and goodness of Almighty God, and calls for our profoundest admiration, that he should not only provide for us his creatures such variety of things for use, but cause, as in this instance, what would be death to one tree, to be refreshment to another, for the supply of our necessaries; and in the formation of this tree, not only causing the cork to grow, but providing also an interior bark sufficient to nourish the tree, and even in a manner exhilarate it, as the loaded wool is shorn from the fleecy kind. To make our gardening to the utmost degree useful, we should be always exercised in these considerations, and this will inspire us with acts of gratitude and obedience." HANBURY.

11. The ILEX is a well known Evergreen, of which there are many *Varieties;* all of which add great beauty to the large quarters of Evergreen trees. The bark of all these sorts is entire, and that of the younger sorts smooth; but the leaves are of different shapes and composition, according to the nature of their Variety. Some of them are nearly like those of both sorts of the Cork Tree; others again are nearly round and prickly; some are long, smooth, and narrow, with few indentures; whilst others are broad, and much serrated. All these *Varieties* will often proceed from acorns gathered of the same tree; nay, the leaves of the same tree will not be always alike, being often found very different on the same plant; so that a quantity of plants of this species raised from seeds, will of themselves afford considerable variety. The acorns of all these sorts are of different sizes, though their shape is nearly the same, which is like that of some sorts of our

Common Oak, but smaller. The most striking *Variety* of the *Ilex* is the *Holly-leaved Oak*, which differs from the other sorts only that the leaves are shaped like those of the Holly Tree. They are of an oblong, oval figure, sinuated, prickly, and downy underneath; but many sorts raised from seeds of the *Ilex* will have such kind of leaves; and it constitutes no farther a *Variety* than what may reasonably be expected from a quantity of the acorns of the *Ilex* sown.

12. KERMES OAK. This is a low growing tree. and a fine Evergreen: It seldom grows to be twenty feet high, and it may be kept down to what height is required. It has the appearance of some of the sorts of the *Ilex*, from which it looks to be a Variety only, though doubtless this is of itself a distinct species. The leaves are smooth, and of an oval figure. They are of a thickish consistence, and larger than most sorts of the *Ilex*. Their verge is indented, and many of them are possessed of small spines; and they are placed on short strong footstalks on the branches. The acorns of this sort are small, though there are to be found in our woods acorns of about the same size and shape.

MILLER says, " this is the Oak from which the Kermes or Scarlet Grain is collected, which is an insect that harbours on this tree."

13. The LIVE OAK is common in America, where it grows to timber. The leaves are large, spear-shaped, oval, of a fine dark green colour, entire, and placed on short footstalks on the branches. The acorns of this sort are small, though they grow in cups with footstalks like the other sorts The wood of this tree is very useful to the inhabitants of Carolina, Pennsylvania, and Virginia, where it grows naturally, being very tough and hard, and serves for many purposes that require such a sort. The acorns serve for food for the meanest people, who not only eat them as such, but, being of a very sweet nature, they are liked by persons of all ranks. From these acorns a sweet oil also is extracted, which is very good.

There are many other *Varieties* of the different species of Evergreen Oaks, which it will not be so necessary to search for here, as the sorts mentioned are the bulk of the tribe, and of themselves afford much variety; and

7. Rha'mnus *Oleo'ides:* The Olive-leaved Evergreen Buckthorn; *an evergreen shrub*; native of Spain.

1. The Common Buckthorn. Of this species there are the following *Varieties:* Dwarf Buckthorn, Long-leaved Dwarf Buckthorn, and the Common Buckthorn of our hedges. Variety is the sole motive for admitting these sorts into a collection. The flowers have no beauty to catch the attention; though their berries, their manner of growing, the colour of their bark in winter, and verdure of their leaves in summer, court us to admit a few of them.

Dwarf Buckthorn is a shrub of about a yard high. The branches grow irregular, and are covered with a blackish coloured bark. The leaves are nearly oval, though they end in a point. They are scarcely an inch long, about half that breadth, and stand opposite by pairs for the most part. The flowers grow on short footstalks, on spurs, by the sides of the branches. They are of a greenish colour, and make little show.

Long-leaved Dwarf Buckthorn differs little from the other, only that it grows to be rather a larger shrub, and the leaves are longer. The flowers are about the same colour as the Dwarf sort; but neither of these scarcely ever produce berries: This makes them much less valuable than our Common Buckthorn, which will exhibit its black berries in plenty in the autumn, either for show or use.

Common Buckthorn is well known in England. Where it does not grow common about a habitation, a few of these shrubs should be admitted; for it is a well looking tree, either in winter or summer, and its black berries in the autumn are no small ornament. The Common Buckthorn will grow to be near sixteen feet high, and will send forth numerous branches on all sides. These are smooth, and the bark is of a blueish colour. Many strong sharp spines come out from the sides and ends of the branches. The leaves are oval, spear-shaped, about two inches long, and one broad. Their under surface is of a lighter green than the upper. They have serrated edges, and stand, sometimes by pairs, sometimes singly, on longish footstalks on the branches. The flowers are produced in clusters from the sides of the branches, in June. Their colour is green; and they are succeeded by black berries, each containing four seeds. Syrup of Buckthorn is made of these berries, and is well known as a cathartic. From the juice of these berries also an admirable green colour is prepared, which is in great request with miniature painters.

All the sorts of Buckthorn are easily PROPAGATED, either by seeds or cuttings. The seeds of the Purging Buckthorn may be gathered in plenty in most parts of England; but the seeds of the Dwarf sorts must be procured from abroad, where they grow naturally, for they produce no seeds with us. They should be sown as soon as possible after they are ripe, in almost any kind of garden mould made fine. They will not always come up the first spring; so that the beds must remain undisturbed and weeded during the summer. After they are come up, and have stood in the seed bed a year or two, they may be planted out in the nursery way, at small distances. These plants are also to be raised by cuttings, which should be planted in the autumn; and if they are not planted very close, they will want no removing until they are finally set out. If a large quantity of these plants is wanted, and little ground is prepared for the cuttings, they may be set very close, and in the winter following taken up, and planted in the nursery way, like the seedlings. In two or three years they may be planted out to stand.

2. FRANGULA, or BERRY-BEARING ALDER. This species affords us the following *Varieties:* Common Black Berry-bearing Alder, Dwarf Berry-bearing Alder, and the American Smooth-leaved Berry-bearing Alder.

The *Common Black Berry-bearing Alder* will grow to the height of about ten feet. It will aspire with an upright stem, and produce numerous branches on all sides. The bark is smooth, of a blueish colour, and is all over spotted with white spots, which make it resemble a blueish gray. The leaves are oval, spear-shaped, and grow irregularly on the branches. They are about two inches long and one broad. Their upper surface is smooth and of a shining green, and their under surface is possessed of many strong veins that run from the midrib to the edges. The flowers are produced in bunches in June, each having a separate footstalk. They are of a greenish colour, and make no show; but they are succeeded by berries, which are first red, afterwards (when ripe) black, and are a great ornament to the tree. This plant will bear a moist situation.

Dwarf Berry-bearing Alder is of very low growth. It seldom rises higher than two feet. The branches are of a blueish brown, and the leaves are nearly round. They are placed on short footstalks, and many strong veins run from the midrib to the border. It makes no show, either in the flowers or fruit; the first being small, and the latter rarely happening.

American Smooth leaved Berry-bearing Alder will arrive at the height of our common sort; and hardly in any respect differs from it, either in leaves, flowers, or fruit.

3. ROUGH-LEAVED ALPINE FRANGULA, or Berry-bearing Alder, differs in no respect also from the common sort, only that it is unarmed with thorns, will grow to be rather taller, and the leaves are tough, larger, and doubly laciniated.

There is a *Variety* of this species, with smooth leaves and of rather lower growth, called the *Smooth-leaved Alpine Frangula.*

The method of PROPAGATING these sorts of the Berry-bearing Alder is exactly the same as that laid down for the Buckthorn; and if those rules are observed, any desired quantity may be raised.

4. PALIURUS, or *Christi Thorn*. The PALIURUS will grow to be a tree of near fourteen feet high, and may be trained to an upright stem, which will send forth numerous slender branches on all sides. These are armed with sharp thorns, two of which are at each joint. One of these thorns is about half an inch long, straight, and upright; the other is scarcely half that length, and bent backward. Between these is the bud for the next year's shoot. The bark on these twigs is smooth, and of a purplish colour, and the spines themselves are of a reddish cast. The joints alternately go in and out, forming at each bud an obtuse angle. The leaves are nearly of an oval figure, of a pale green colour, and stand on very short footstalks. They are small, being scarcely an inch in length, have three

longitudinal veins, and are placed alternately on the branches. The flowers are produced in clusters from the sides of the young shoots. They are of a yellow colour; and though each single flower is small, yet they will be produced in such plenty all over the plant, that they may make a very good show. June is the time of flowering; and they are succeeded by a small fruit, that is surrounded by a membrane.

The plant under consideration, says HANBURY, "is undoubtedly the sort of which the crown of thorns for Our Blessed Saviour was composed. The branches are very pliant, and the spines of it are at every joint strong and sharp. It grows naturally about Jerusalem, as well as in many parts of Judæa; and there is no doubt that the barbarous Jews would make choice of it for their cruel purpose. But what farther confirms the truth of these thorns being then used, are the antient pictures of our Blessed Saviour's crucifixion. The thorns of the crown on his head exactly answer to those of this tree; and there is great reason to suppose these were taken from the earliest paintings of the Lord of Life; and even now our modern painters copy from them, and represent the crown as composed of these thorns. These plants, therefore, should principally have a share in those parts of the plantation that are more peculiarly designed for religious retirement; for they will prove excellent monitors, and conduce to due reflection on and gratitude to *Him who hath loved us, and has washed us from our sins*," &c.

These deciduous sorts may be PROPAGATED by seeds and layers. The soil for the seed should be that taken from a fresh pasture with the sward; and having lain a year to rot, and been turned three or four times, to this a fourth part of drift sand should be added; the whole being well mixed, the seeds should be sown half an inch deep. They rarely come up before the spring twelvemonth after sowing; so that the beds must be undisturbed all the summer, and kept free from weeds. After the plants are come up, they may stand a year or two in the seed bed, and be then planted out in the nursery, at the usual distance: In about three years they will be fit to be finally planted out. These plants may also be propagated by layers; but this is not always a very easy task, and it is seldom that plants can be obtained under two years. Nicking them like carnations is a very uncertain method to be practised on these twigs; for the end of the nick where the root is expected to strike will swell, and be covered with a close watery substance, without sending out any fibres; and the branch growing in the ground will in two or three years grow this out, and thus all hopes of a root will be lost. By twisting them, also, is an uncertain method (though many plants may be raised this way); for if the twisting be too great, you kill the twig designed for the layer; and if it is too little, you may look at the end of two or three years, and find no roots at your layers. However, by a gentle twist, just breaking the bark, plants may be raised. HANBURY continues, "Finding these methods precarious and uncertain, I had recourse to another, by which I obtained numbers of plants. With a sharp knife I made a gentle nick or two the depth of the bark, about the bud and thorns which are at a joint. Having done this in two or three places in every shoot, and having laid them in the ground, every twig had struck root, and were become good plants by that time two years; many of which were fit to plant out for good, and the smaller proper for the nursery ground to gain strength."

5. The ALATERNUS. The *Varieties* of this Species are,

The Common Alaternus.
The Broad-leaved Alaternus:
The Jagged-leaved Alaternus.

The *Common Alaternus* is again *variegated:* There are of it, the Gold-striped, the Silver-striped, the Blotch-leaved, the large and the smaller growing *Alaternus;* and whoever is for having them in plantations of the present kind, will still increase the variety. This is indeed objected to by some, as, they say, they cannot be Evergreens; others again think they are most proper, as they retain their leaves, and appear amongst others, of different colours, like flowers in summer. The branches of these sorts of *Alaternus* are numerous; and the younger branches are covered with a smooth green bark. In winter, indeed, they will be brown, and some of a reddish colour; others will have their sides next the sun red, and the opposite green. The leaves are oval, of a lucid green in the common sorts, and look very beautiful. Their edges are crenated, and they grow alternately on the branches. The flowers are produced in April, from the wings of the leaves, in little clusters: They are of a greenish colour, but make no show: and are succeeded by berries, which are very grateful to blackbirds, thrushes, and the like kinds of birds.

The *Broad-leaved Alaternus* is the grandest looking tree of all the sorts: It will grow to the greatest height, if permitted to shoot freely; though it may be kept down to any height wanted. The leaves are the longest of any of the sorts, and their edges are lightly crenated. They differ a little in figure from the preceeding sort, being more heart-shaped. They are of a fine shining strong green colour, both in winter and summer; and this tree produces flowers and seeds like the other.

The *Jagged-leaved Alaternus* has as different a look from the other as any two Evergreens whatever. It is a well looking upright tree, and the branches are covered with a smooth fine bark, which in winter is of a reddish colour. The leaves, like those of all the sorts, grow alternately. They are long and narrow, and are so jagged as to cause them to have a particular look. Their surface is smooth and shining, and their figure lanceolate; and this, together with the nature of their serratures, causes in the tree a beautiful as well as singular look. The flowers are produced in the same manner as the others; and are succeeded by berries, which are used by painters in composing some of their yellows. There are variegated sorts of the Jagged-leaved *Alaternus* in both silver and gold stripes, which are indeed very beautiful; but they are very apt to turn green, if planted in a rich soil; so that to continue the stripes in perfection, the worst sort of hungry land should be allotted them.

There are more Varieties of the *Alaternus*, but their differences are so inconsiderable as scarcely to be worth enumerating. All the sorts have been confounded by the unskilful with those of *Phillyrea*, which have indiscriminately passed one for the other: That the Gardener, therefore, may be guarded from running again into these errors, he must observe, that the leaves of all the sorts of *Phillyrea* grow always opposite by pairs, whereas those of the *Alaternus* grow singly and *alternately* on the branches, which first gave occasion to the shrub's being so called. The Botanist will see a more material difference, when, upon examining the flowers, he finds they belong to distinct classes.

6. The NARROW-LEAVED BUCKTHORN grows to be a shrub of ten or twelve feet high, sending forth several branches from the sides from the bottom to the top. They are covered with a blackish or dark coloured bark, and each of them is terminated by a long sharp thorn. The leaves are very narrow, fleshy, astringent, of a strong green colour, and grow together in bunches on the sides of the branches. The flowers come out from the sides of the branches in small bunches: They are of an herbaceous colour, appear early in the spring, and are succeeded by large round berries, like those of the Sloe Bush, which are harsh and sour to the taste, and of a fine black colour when ripe. The fruit of this sort continues on the trees all winter, making a beautiful appearance among the narrow clustered leaves at that season.

7. OLIVE-LEAVED BUCKTHORN will grow to be eight or ten feet high, sending forth numerous branches, each of which is terminated by a long sharp spine. The leaves are small, oblong, obtuse, undivided, veined, smooth, of a thickish consistence, and grow two or three together on their own separate footstalks. The flowers come out from the sides of the branches in the spring. They are small, of a whitish green colour; and are suceeded by round black-berries, about the size and colour of those of the Common Purging Buckthorn.

These Evergreeen sorts are to be PROPAGATED 1. By layers. This business must be done in the autumn, when the last summer's shoots should be laid in the ground. These will often strike root at almost every joint; though they have been found in some strong soils, upon examining them in the autumn, after being layered a whole year, without any roots; so that it would be proper to give the layer a slit at the joint, and bend it so in the ground as to keep it open; and it will have plenty of root by the autumn. Another thing to be observed is, that in order to obtain good layers, the plants designed to be encreased should be headed the year before, and this will cause them to shoot vigorously; and from these shoots the strongest and best layers may be expected; many of which will be good plants to set out where they are to remain, while the weakest may be planted in the usual nursery way to gain strength. 2. These plants may be raised by seeds, the variegated ones excepted, for they must always be encreased by layers. The seeds will be ripe in September, or the beginning of October, when they should be guarded from the birds, or they will soon eat them all. Soon after they are ripe they should be sown, for even then they will often remain two years before they come up. The beds should be composed of fine light mould, and they should be sown an inch deep. If few or no plants appear in the spring, you must wait, and weed the beds with patience, until the spring following, when you may expect a plentiful crop. Let them stand two years in the seed bed, with constant weeding, and frequent watering in dry weather; and in March let them be planted out in the nursery, where they will be afterwards ready for removing when wanted. As these trees produce plenty of good seeds, by this means a prodigious quantity of plants may be soon raised; and those from seeds are always observed to grow straighter and to a greater height than those raised from layers; so that where many of these trees are wanted for large plantations, the raising them from seeds is the most eligible method.

All the sorts of *Alaternus* are very hardy, and may be planted in almost any soil or situation; but the Narrow and Olive-leaved Buckthorn should be stationed in a dry, warm, well sheltered place.

RHODODENDRON.

Linnean Class and Order, *Decandria Monogynia:* Each flower contains ten males and one female. There are seven Species; six of which are here treated of:

1. Rhodode'ndron *Ferrugi'neum:* The Ferruginеous Dwarf Rose Bay; *a low deciduous shrub;* native of the Alps, Apennines, and other mountains of Europe.

2. Rhodode'ndron *Hirsu'tum:* The Hairy Dwarf Rose Bay; *a low deciduous shrub;* native of the Alps and many mountains of Switzerland and Austria.

3. Rhodode'ndron *Chamæci'stus:* The Chamæcistus, or Ciliated-leaved Dwarf Rose Bay; *a low deciduous shrub;* native of Mount Baldus, and near Saltzburg in Germany.

4. Rhodode'ndron *Dau'ricum:* The Daurian Dwarf Rose Bay; *a low deciduous shrub;* native of Dauria.

5. Rhodode'ndron *Ma'ximum:* The American Mountain Laurel; *an evergreen shrub,* native of Virginia.

6. Rhodode'ndron *Po'nticum:* The Pontic Dwarf Rose Bay; *an evergreen shrub;* native of the East, and of moist shady places near Gibralter.

1. The Ferruginеous Dwarf Rose Bay is a shrub of about two or three feet in growth. The branches are numerous, irregular, and covered with a dark brown bark, having a tinge of purple. The leaves are of two very different colours; the upper surface is of a fine green, but the under is of an iron colour. There will be numbers of these on every twig; and they grow in a pleasing irregular manner: They are of a lanceolated figure, have their surfaces smooth, and are little more than an inch long. Their edges are reflexed; but they have no serratures, and, on the whole constitute a great beauty when in leaf only. The flowers grow at the ends of the branches, in round

bunches. Their petals are funnel-shaped, of a pale rose colour, appear in June, and are rarely succeeded by seeds in England.

2. **Hairy Dwarf Rose Bay** is a shrub of about the same, or rather of a lower growth. The branches of this species also are numerous, and the bark with which they are covered is of a lightish brown colour. They are ornamented with plenty of leaves, in an irregular manner. They are not so large as those of the former sort; but are of the same figure, only a little more inclined to an oval. They sit close to the branches, and have no serratures, but hairs on their edges like the eyelashes. Their under surface also is possessed of the same sort of hairs, which are all of an iron colour. The flowers will be produced at the ends of the branches, in bunches, in May. These are also funnel-shaped, of a light red colour, make a good show, and are succeeded by oval capsules, containing ripe seeds, in August.

3. **Chamæcistus, or Ciliated Dwarf Rose Bay**, will grow to be about a yard high. The branches are numerous, produced irregularly, and covered with a purplish bark. The leaves are produced in great plenty, and without order, on the branches. They are oval, spear-shaped, small, and their under surface is of the colour of iron. The edges also are possessed of many iron-coloured hairs, which are placed like those on the eyelids. The flowers are produced at the ends of the branches, in bunches. They are of a wheel-shaped figure, pretty large, of a fine crimson colour, and make a handsome show. They appear in June, and are succeeded by oval capsules, containing ripe seeds, in September.

4. **Daurian Dwarf Rose Bay** is a low shrub, sending forth many branches covered with a brownish bark. The leaves are broad, naked, smooth, and come out without order on short footstalks. The flowers are wheel shaped, large, and of a beautiful rose colour: They appear in May; and are succeeded by oval capsules full of seeds, which do not always ripen in England.

All these deciduous sorts are PROPAGATED best by the seeds, and as they grow naturally on the Alps, Apennines, and other snowy and cold mountains, and are seldom made to grow and flourish fair in gardens, it will be the best way for a Gentleman who has extended his plantation, and has any part of it mountainous, hilly, or rocky, on the north side, to get some spots well cleared of all roots and weeds; and these being made fine and level, let the seeds be sown therein. They will want no covering; a gentle patting down with the spade will be sufficient; for the seeds are so exceedingly small, that they will be washed into the ground deep enough by the first shower of rain that follows. Whoever is not content with sowing seeds, and covering them no more than what they will get by being patted down, must only lightly dust some earth over them; for if they are covered half an inch, the general depth for most seeds, you must expect no crop. After the young plants come up, they must be watered in dry weather, weeded, and in the winter protected from the frosts, which will destroy them. And here one thing is to be observed, that though the north side, at the foot of or on a hill, is thought most proper for their growth, as being most suitable to their nature, yet a place must be chosen for them that has trees and hedges to shelter them from the northern black frosts; for these trees, hardy as they are, will be liable to be destroyed by them, for want of snow, as in other places, to cover them and keep them warm in the winter season. After these plants are come up, they should be thinned; and leaving only a proper number in each respective place, and being protected for the first two or three winters, either by mats or hand glasses, in the severest weather, they will be afterwards strong enough to be left to themselves, especially if the places are tolerably sheltered. If a Gardener has no other ground than his seminary for raising plants, his best method will be to prepare a compost for these seeds in the following manner: Take four bushels of earth from some neighbouring hill, which if rocky, that nearest the surface, on which the sheep have been used to lie and dung, will be the best; but if it be of any other nature, the mould nearest the surface, mixed with the following, will do very well: Take six bushels of maiden earth from a rich loamy pasture, that has been dug up with the sward, and by frequent turning is well rotted and mixed, and four bushels of drift or sea sand. Let these be well mixed together, and of this let the bed be made. The bed being made level and fine, the seeds sown, and gently patted down with the spade, or at farthest no other covering than being gently dusted over with the finest mould, may be left to nature. This bed should be in a shady well sheltered place; and the plants after they are come up should be weeded and watered in the summer, and protected from frosts by mats in the winter. In the spring they may be pricked out in beds in the nursery ground, at a very small distance, that they may be hooped and matted if the following winter should prove very severe. The second winter they will require no other trouble than pricking furze bushes round the bed for their defence; and after that they may be set out to stand.

5. The AMERICAN MOUNTAIN LAUREL is a plant so distinguished because, in America, it grows naturally upon the highest mountains, and on the edges of cliffs, precipices, &c. There it will grow to be a moderate sized tree; with us it seldom rises higher than six feet. The branches are not numerous, neither are they produced in any order. The leaves are large and beautiful, of an oval spear-shaped figure, and a little resemble those of our Common Laurel. They are of a shining strong green on their upper surface, though paler underneath; but they lose this delicacy as they grow older, altering to a kind of iron colour. Their edges are actutely reflexed, and they grow irregularly on short footstalks on the branches. The flowers are produced at the ends of the branches about Midsummer, though sometimes sooner; before which time the buds will be large and turgid; and indeed, as they begin to swell early in the autumn before, these have a good effect, and look well all winter. When the shrub is in blow, the flowers appear close to the branches, in roundish bunches. Each is composed of one petal, which is divided at the rim into five parts, one of which is dotted in a pretty manner. They are very beautiful, and alter their colour as they grow older; for at first the petal is of a very pale blush colour, which dies away to a white; but the outside, which is a peach colour, is

not subject in so high a degree to this alteration. They will continue, by succession, sometimes more than two months; and are succeeded by oval capsules, full of seeds.

6. **Pontic Rose Bay** grows to about four or five feet high, sending forth several branches without order from the sides. The leaves are spear-shaped, glossy on both sides, acute, and placed on short footstalks on the branches. The flowers are produced in clusters from the ends of the branches; each of them is bell-shaped, and of a fine purple colour. They appear in July; and are succeeded by oval capsules containing the seeds, which seldom ripen in England.

The propagation of these Evergreen sorts must be from seeds, which we receive from the places where they grow naturally. The best way is to sow them very thin in the places where they are designed to remain; and if these places be naturally rocky, sandy, and shady, it will be so much the better (especially for the first sort; the second requires a moistish soil, in a warm shady place); if not, a quantity of drift sand must be added to the natural soil, and all made fine and level. Some spots for the reception of the seeds are to be pitched on. A few seeds should be put in each, and covered about half an inch deep, and then some sticks stuck round them to direct to the true places, that they may not be disturbed by hoeing the weeds, but that these may be all carefully plucked up by the hand as often as they appear; for it will be a whole year, and sometimes two or more, before the plants come up. This careful weeding must always be repeated; and after the plants come up, those that grow too close may be drawn the spring following, and each set in a separate pot, and then plunged into a hotbed, to set them growing. The plants that remain without removing will be the strongest and best, and will be more likely to produce flowers than any other; though this seems to be a plant that will bear transplanting very well, especially if it is not to be carried at too great a distance for the roots to dry, and a ball of earth be preserved to them. Whenever they are not to be raised and remain in the places, the best way is to sow them in pots filled with sandy earth, or such as is made so by at least a third part of sand being added. After the plants come up, they may be planted in separate pots the spring following, and then set forward by a plunge in the bed; and afterwards they may be any time turned out into the places where they are to remain, which ought to be in a naturally sandy situation, otherwise there will be little hopes of seeing them in any degree of perfection.

RHUS.

LINNEAN Class and Order, *Pentandria Trigynia:* Each flower contains five males and three females. There are twenty-four SPECIES; eight of which are sufficiently hardy to stand this climate

1. RHUS *Coria'ria:* The TANNER'S SUMACH, or the ELM-LEAVED SUMACH; *a tall deciduous shrub;* native of Turkey, Palestine, Syria, Italy, and Spain.

2. RHUS *Ty'phynum:* The VIRGINIA SUMACH; *a deciduous shrub;* native of Virginia.

3. RHUS *Gla'brum:* The SMOOTH SUMACH; *a tall deciduous shrub;* native of North America.

4. RHUS *Coppa'llinum:* The LENTISCUS-LEAVED SUMACH; *a deciduous shrub;* native of North America.

5. RHUS *Ver'nix:* The VARNISH TREE, or POISON ASH TREE; *a deciduous shrub;* native of North America, also of Japan.

6. RHUS *Toxicode'ndron:* The TOXICODENDRON, or POISON OAK; *a low deciduous shrub;* native of North America.

7. RHUS *Ra'dicans:* The RADICANT TOXICODENDRON; *a deciduous shrub;* native of Virginia and Canada.

8. RHUS *Co'tinus:* The VENETIAN SUMACH, or COCCY'GRIA; *a deciduous shrub;* native of Italy, Spain, and many parts of Europe.

1. The TANNER'S SUMACH will grow to be about twelve feet high; and the branches are covered with a brownish hairy bark. It is said that this bark is equal

to that of the English Oak for tanning of leather, and that the leather from Turkey is chiefly tanned with it. The leaves of this shrub, which are placed alternately on the branches, have a grand look. They are pinnated, and each ends with an odd foliole. The midrib of each is garnished with about eight pairs of folioles, which all terminate with an odd one. The folioles of which the compound leaf is composed are oval, and not large, being scarcely two inches long, and three fourths of an inch broad; but the whole leaf makes a fine show. Their colour is a light green; their under surface is hairy, and they are sawed at their edges. The flowers, which are produced in large bunches at the ends of the branches, are of a whitish colour, with a tinge of green. Each is composed of many spikes, on which the flowers sit close. They come out in July; but are not succeeded by ripe seeds in England, like some of the subsequent sorts. The leaves and seeds are possessed of many excellent virtues.

2. Virginia Sumach. Of this species there are several *Varieties;* such as, the Common Stag's Horn, Large Virginian, and Dwarf Sumach.

The *Stag's Horn Sumach* is so called from the younger branches much resembling a stag's horn, called the Velvet Horn. It will grow to be about ten feet high, and the older branches are covered with a smooth brownish bark, in some places of a grayish colour, whilst the younger ones are covered with a hairy down, which much resembles the velvet horn of a stag. The leaves have a noble look; for they are large and pinnated. The folioles are oblong, and larger than those of the preceding sort: about seven pairs are stationed along the midrib, which are terminated by an odd one. Their under surface is hairy, and they die to a purplish scarlet in the autumn. The flowers are produced in June, at the ends of the branches: they will be in large tufts, but make no show; though some admire them when succeeded by seeds in the autumn; for at the end of that season, even after the leaves are fallen, there will be large tufts of seeds, of a scarlet colour, left at the ends of the branches, which have an uncommon appearance.

The *Large Virginian Sumach* differs in no respect from the preceding species, only that it shoots stronger, and grows to be larger, even sixteen or eighteen feet high, and is a more regular tree. The young shoots also are of a more reddish colour; and though possessed of the like hairy down, on the whole do not so much resemble those of the velvet stag's horn as the other.

Dwarf Sumach differs in no respect from the Common Stag's Horn, except that it is of a very low growth, seldom rising higher than three feet.

3. SMOOTH SUMACH. This includes many notable *Varieties*, commonly called New England, Smooth Carolina, and Canada Sumach.

New England Sumach will grow to about sixteen feet high, forth sending many strong shoots from the root and the sides, covered with a smooth downy bark. The radical shoots will often be near an inch in diameter in one summer's growth. The young branches also from the sides will be large: they are smooth, though a litttle downy in the summer; and the bark in the winter is of a light brown colour. The leaves of this sort are the largest of any, being composed of ten or more pairs of folioles, proportionally large, and which are terminated by an odd one. The flowers are produced at the ends of the branches, in large loose panicles: They are of a greenish yellow colour, and come out in June, but are not succeeded by seeds with us.

The *Carolina Sumach* seldom rises to more than ten feet high. The branches are smooth, of a fine purplish colour, and dusted over with a whitish powder. The leaves are pinnated like the other, and the flowers are produced in panicles at the ends of the branches. They are of a fine scarlet colour, appear in July, and are succeeded by bunches of seeds which in autumn are of a very beautiful red, though they never ripen in England.

The *Canada Sumach* grows to about ten feet in height, and the branches, which are smooth and of a purplish colour, are dusted over, like the former, with a kind of whitish powder. The leaves are pinnated like the other, and the folioles are on both sides smooth; but their surfaces are of two colours, the upper being of a shining green, whilst the under is hoary. The flowers are red and produced in July, in large panicles, at the ends of the branches. They appear as if a whitish powder had been dusted in among them, which attracts notice; but their seeds do not ripen in England.

4. Lentiscus-leaved Sumach. The chief *Varieties* of this species are, the True Lentiscus-leaved, and the Canada Lentiscus-leaved Sumach.

The *True Lentiscus leaved Sumach* seldom rises to more than four feet in height, and the branches are covered with a smooth brown bark. The leaves also are pinnated, and are the most beautiful of all the sorts; for the folioles, though small, are of a shining green. There are about four or five pairs on the midrib, which are beautifully arranged, having a membrane or wing on each side running from pair to pair: they are terminated by an odd one, resemble in appearance those of the Lentiscus, and are the greatest ornaments of this shrub. The flowers are produced in July, at the ends of the branches. They are of a greenish colour; and though produced in large loose panicles, make no great figure; neither do the seeds ripen with us.

Canada Lentiscus-leaved Sumach grows to be ten feet high. The leaves have chiefly the properties of the former, but are larger, less delicate, and dusted or pounced over with a whitish matter. The flowers are produced in the same manner as the other; they are greenish, and succeeded by seeds in England.

5. The Poison Ash. This is called the Poison Tree because it abounds with a milky poisonous juice, and is distinguished by the title Poison Ash, because the leaves somewhat resemble those of the Ash tree. It is called also by some the Varnish tree, being the shrub from which the true varnish is collected. The Poison Ash, with us, will grow to the height of about eight feet; and the branches, which are not very numerous, are covered with a smooth light brown bark, tinged with red. The leaves are pinnated, and the folioles of which each is composed consist of about three or four pairs, with an odd one. These are of an oblong pointed figure, of a fine green colour, and have their edges entire. In the autumn, they die to a red or purple colour, and at that time their leaves, just before they fall, make a charming appearance, some being red,

others purple, others between both; the colours of the footstalks and midribs will also be various, thereby in the same tree affording a variety of shades. The flowers are small, and make no show: they are whitish, and produced in May, from the wings of the branches. There will be male and female flowers on different plants; and the females are succeeded by small roundish fruit, which seldom ripens in England.

6. The Poison Oak is a lower shrub, seldom growing to be more than four or five feet high. The branches are smooth, and of a light brown colour. It will cost the Gardener some trouble to keep these plants properly, as upright shrubs; for they will send out shoots from the bottom, which will naturally trail on the ground, and strike root. But these must be constantly taken off; for were they to be neglected a few years, a single plant would have spread itself to such a distance as to occupy a great space of ground, in a manner not becoming a well ordered shrubery or wilderness. The leaves of this shrub are trifoliate. Each foliole has a short pedicle to itself, and the common footstalk of the whole three is very long. They are of a shining green, smooth, and have their edges sometimes sinuated, though generally entire. They are roundish, angular, large, and on the whole make a good show. The flowers are of a whitish colour, are produced from the sides of the branches, in July, and are succeeded by cream-coloured berries, which growing in the autumn, and even in the winter, after the leaves are fallen, in a kind of panicles, are by many taken notice of. It bears a moist situation.

There are several *Varieties* of this species; some with hairy leaves, some with leaves very downy, others of fine upright growth. In other respects their difference is inconsiderable.

7. Radicant Toxicodendron. Of this species there are several *Varieties*; some of which are of upright growth, though the stalks of all have, more or less, a tendency to lie on the ground, and strike root at the joints. The leaves of all the sorts are trifoliate, of an oval figure, smooth, and entire. The flowers are greenish, appear in June and July, and are

succeeded by roundish yellow berries, which rarely ripen in England.

8. The VENETIAN SUMACH is a shrub of about ten feet growth, and has many valuable properties to recommend it. The bark on the older branches is of a light brown colour, whilst that on the young shoots is smooth, and of a purple hue. The leaves are nearly of an oval figure, and stand singly upon long footstalks on the branches. From these the tree receives great beauty: they are of a delightful green, are smooth, and when bruised emit a strong scent, which by many is thought very grateful; and on that account only makes this shrub desirable. The flowers are produced at the ends of the branches, in July, in a singular manner: The end of the last year's shoot about that time will divide itself, and produce hair-like bunches of purplish flowers, so as to cover the tree; and in the autumn, though they do not perfect their seeds with us, these tufts will still remain, be of a darker colour, and almost cover it; on account of which singular oddness this shrub is valued by some persons. The bark is used by the tanners; whilst the wood and leaves are sought after by the dyers; the former being said to dye a yellow, and the latter, together with the young branches, to dye a good black.

The PROPAGATION of the Sumach is not very difficult; for the second, third, and fourth sorts, with their Varieties, produce suckers in such plenty as to over-run, if not taken off, all that is near them. These suckers when taken up will be each a good plant; nay, their very roots will grow; and though they be thrown upon a bed, and dug carelessly in, even then many young plants will spring from them.

The POISON OAK and RADICANT TOXICODENDRON also PROPAGATE themselves very fast by their trailing branches, which strike root as they go, and each of which will be a plant.

The VENETIAN SUMACH is easily encreased by layers; for the young shoots being slit and layered in the autumn, by the autumn following will be good plants, either for the nursery ground, or where they are to be planted out to stand.

The **Elm-leaved Sumach** and the **Poison Ash**, however, do not throw out suckers in this manner; and these are to be **propagated** from the seeds, which we receive from the places where they naturally grow. An east border of garden mould (made fine) should be prepared; and in this the seeds should be sown as soon as possible after we receive them. The depth they will require will be about half an inch. After being sown, and the border dressed up, nothing more need be done till the weeds begin to come up, which will be before the plants: as often as these appear, they must be plucked up; and when the hot parching weather comes on, the border must be shaded in the heat of the day, and, every evening, should be gently sprinkled over with water. In the beginning of June many of the plants will come up: though they frequently remain, at least the greatest part of them, until the second spring before they make their appearance. After the plants are come up, they will want no other care than shading, weeding, and now and then a watering during the first summer; and if the winter should be severe, they should be matted, especially the Elm-leaved sort, which is rather the most tender whilst young. After this they will require no other care than weeding until they are two-years-old seedlings; when, in the spring, they should be taken up and planted in the nursery ground, and in two or three years more will be fit to set out for good. And here it must not be omitted to observe, that the other sorts before mentioned, which propagate themselves so fast by suckers, may be raised this way if the seeds can be obtained; and, indeed, whoever has not the conveniency of procuring a few plants of each, and can have the seeds, must practise this method with them, by which he will soon procure plenty.

ROBINIA.

Linnean Class and Order, *Diadelphia Decandria:* Each flower contains ten males and one female; the males being divided into two sets at the base. There are nine Species; five of which bear the open air of this country.

1. Robi'nia *Pseud-aca'cia:* The Acacia, or Two-thorned Acacia; *a deciduous tree;* native of most parts of North America.

2. Robi'nia *Hi'spida:* The Thornless Acacia; *a tall deciduous shrub;* native of America.

3. Robi'nia *Caraga'na:* The Caragana; *a deciduous shrub;* native of Siberia.

4. Robi'nia *Frute'scens:* The Shrubby Aspalathus; *a deciduous shrub;* native of Siberia, and Tartary.

5. Robi'nia *Pygmæa:* The Dwarf Aspalathus; *a low deciduous shrub;* native of Siberia.

1. The Common Acacia, or Two-thorned Acacia, will grow to the height of thirty-five or more feet. The branches are covered with a smooth purplish-coloured bark, and armed with strong spines, which are placed at the buds. Each bud, especially of the young vigorous shoots, will be generally guarded by two of these spines, one of which will be on one side, while the other will occupy the opposite place. The branches are very brittle, and in summer, when the leaves are on, are often broke by the high winds. The leaves come out late in the spring; but for this they make ample amends by the beautiful foliage they will display soon after. They are pinnated leaves, the most beautiful of all the compound sorts. The folioles of which each is composed are of a fine green; and as there are no less than nine or ten pair of them placed along the midrib, with an odd one, the whole leaf appears very large; and all the tree being thus ornamented has a charming look, even at that time. But this Tree receives its greatest beauty from its flowers,

which will be produced in long pendulous bunches, in June. They are of the papilionaceous kind; their colour is white; and when the tree blows freely, its head will be enchantingly covered with them; for they will hang all over it in a free and easy manner; some bunches appearing wholly in view, others again half hid by the waving leaves, that will sometimes alternately hide and shew them; at which time also, when there is a current of air, the flowers themselves receive fresh beauty from being thus agitated. "But this is not all: nature has granted them a smell, which is very grateful; so that in an evening, or after a shower, they will perfume the circumambient air to some distance: Thus they will prove a feast to all those who will attend at those times, as they will never fail of regaling one of the senses by their grateful and profuse fragrance." These flowers, it is to be lamented, are of short duration; and are succeeded by pods, which in some seasons will perfect their seeds with us.

The principal *Varieties* of this species are, the *Scentless, Prickly-podded, Rose-coloured, Scarlet, Smooth-podded, &c. Acacia.*

2. The THORNLESS ACACIA, or HISPID ACACIA, is of lower growth; the young branches, and the footstalks and very cups of the flowers. are covered with prickly hairs. The flowers are produced rather earlier than those of the other sorts; they are large, and of a most beautiful rose colour. They have no odour like the others; but have a most beautiful appearance when in blow.

3. CARAGANA rises, with a shrubby stalk, to the height of about eight or ten feet, sending forth several branches, which are covered, with a greenish yellow bark. The leaves are abruptly pinnated; the folioles are oval, spear-shaped, pointed, and consist of about five or six pair arranged along the midrib. The flowers come out from the sides of the branches, on single footstalks: they are small, of a yellowish colour, apppear in May, and are succeeded by smooth compressed pods containing the seeds, which will be ripe in September.

4. The SHRUBBY ASPALATHUS is a beautiful flowering shrub. Its growth will be seven or eight feet; and the branches naturally grow upright, The bark is

smooth, and of a yellowish colour; but that of the youngest twigs partakes more of a purplish colour on one side, and is on the other often of a light green with a yellow tinge. The leaves are each composed of about four folioles, which are oval and pointed. The flowers are produced in May, from the joints of the branches, upon single footstalks; they are of a fine yellow colour, and of the butterfly make; and so adorn the tree when in blow, as to render it inferior to few of the flowering shrubs. These flowers are succeeded by pods, containing ripe seeds, in the autumn.

5. DWARF ASPALATHUS is a pretty little shrub, sending forth several slender branches which are covered with a golden bark. The leaves are quaternate, wedge-shaped, obtuse, have no footstalks, and, unless very severe weather happens, continue on the plant the greatest part of the winter. The flowers come out from the sides of the branches, on single footstalks: they are small, of a yellow colour, appear in May, and are succeeded by ripe seeds in the autumn.

The PROPAGATION of all these sorts is very easy, and may be done, 1. By seeds. If these are sown the beginning of March, half an inch deep, in a bed of any common garden mould, plants will come up in May, which will want no other care than weeding all the first summer, and no protection of any kind in the winter; for they are all hardy enough. In the following spring they should be planted out in the nursery ground, a foot asunder, and two feet distant in the rows; and here (the first three sorts) they should not stand longer than two or three years before they are set out to remain, as they will grow exceedingly fast, and by that time will be perhaps six feet in height. The fourth sort being of lower growth, the plants may be pricked in beds, a foot asunder, which will be room enough for them to grow in, before they be finally set out. It may not be amiss to observe also, that the seeds of this sort often remain until the second spring before they come up; so that when they do not appear the first after sowing, the beds must be kept weeded all summer: and, if the seeds were good, there will be no fear of a crop the following spring. 2. These sorts are easily propagated by cuttings, which if planted in October, in a moistish shady border, many of them will grow. Here they should stand two years, when they will be proper plants to be planted out; though we must observe, that the fourth sort may remain longer before they are set out; and as the cuttings of that sort have often failed growing, the most certain method, and what is generally practised when there are no seeds, is to encrease it by layers. 3. The first sorts will encrease themselves by suckers, in sufficient plenty: for the old plants will spawn at a considerable distance, and afford such a quantity of free-shooting suckers, that they will be all good plants, fit to be set out for continuance.

ROSA.

LINNEAN Class and Order, *Icosandria Polygynia:* Each flower contains about twenty males and many females. There are eighteen SPECIES; thirteen of which we here enumerate:

1. RO'SA *Cani'na:* The DOG ROSE, or HEP TREE; *a deciduous shrub;* common in our hedges, and most parts of Europe.

2. RO'SA *Pimpinellifo'lia:* The BURNET ROSE; *a deciduous shrub;* natural to England and most parts of Europe.

3. RO'SA *Spinosi'ssima:* The Scotch ROSE or CATWHIN; *a deciduous shrub;* native of Scotland, England, and most parts of Europe.

4. RO'SA *Alpi'na:* The ALPINE ROSE; *a deciduous shrub;* native of the Alps of Switzerland.

5. RO'SA *Eglante'ria:* The EGLANTINE, or the SWEETBRIAR; *a deciduous shrub;* native of England and Switzerland.

6. RO'SA *Cinnamo'mia:* The CINNAMON ROSE; *a deciduous shrub;* grows in the southern parts of Europe.

7. ROSA *Caroli'na:* CAROLINA ROSE; *a deciduous shrub;* native of North America.

8. Ro'sa *Villo'sa:* The Apple Rose; *a deciduous shrub;* native of England and most parts of Europe.

9 Ro'sa *Centifo'lia:* The Hundred-leaved Rose; *a deciduous shrub:* it is not known where this Rose grows naturally.

10. Ro'sa *Ga'llica:* The Gallican Rose; *a deciduous shrub;* grows naturally in most parts of Europe.

11. Ro'sa *Sempervi'rens:* The Evergreen Rose, or Musk Rose; *an evergreen shrub;* native of Germany.

12. Ro'sa *Penduli'na:* The Long-fruited Rose: *a deciduous shrub;* native of Europe.

13. Ro'sa *A'lba*: The White Rose; *a deciduous shrub;* native of Europe.

1. The Dog Rose grows all over England, and is seldom cultivated in gardens. It is, nevertheless, possessed of many beauties, if observed with due attention; and, if it was not so very common, would deserve a place in the choicest Collection.

The *Varieties* of this species are, the Hep Tree with Red flowers, the White-flowered Hep Tree.

2. Burnet Rose is a small growing shrub, seldom rising higher than three feet. The flowers are single, and make no great figure; but what renders this Rose valuable is, that the leaves are pinnated in such a manner as to resemble those of the Burnet, which occasions its being so called, and by which it constitutes an agreeable variety among the leafy tribe.

The *Varieties* of it are, Red flowered, Burnet-leaved Rose, Black Burnet-leaved Rose, White Burnet-leaved Rose.

3. Scotch Rose. The *Varieties* of this species are all of low growth, and known by the respective names of,

Dwarf Scotch with a White Flower,
Dwarf Scotch with a Red Flower,
Dwarf Scotch with a Striped Flower,
Dwarf Scotch with a Marbled Flower.

They are all beautiful flowering shrubs. The White-flowering sort will grow to the highest size, as it will commonly grow to be three feet, whilst the others seldom rise to above two feet in height. The branches are upright and numerous, and smartly set off by their beautiful pinnated leaves; for the leaves of these sorts excel those of all other Roses in delicacy, the folioles being small, of a good green colour, and arranged along the midrib in the manner of those of the Burnet. The flowers will be produced from the branches in vast profusion; and though they are all single, they make a show inferior to few shrubs. In winter they will be full of heps that have the appearance of blackberries; and if the weather be mild, the young buds will swell early, and appear like so many little red eyes all over the shrub, which is a promise of the reviving season. The young branches of all these sorts are exceedingly full of prickles.

4. Alpine Rose. This is usually called the Rose without Thorns, the branches being perfectly free from all kinds of prickles. They are exeedingly smooth, of a reddish colour, and look well in winter. The flowers are single, and of a deep red colour, They come out in May, before any of the other sorts; and the plant is valued by some people on that account. They are succeeded by long narrow heps, which look singular, and, together with the early appearance of their flowers, and their beautiful twigs, that are wholly free from the armature of the other sorts, cause this species to be much admired.

5. Eglantine, or Sweetbriar. The *Varieties* of this species are, Common Sweetbriar, Semi-double Sweetbriar, Double Red Sweetbriar, Maiden Blush Double Sweetbriar, Sweetbriar with Yellow Flowers.

The *Common Sweetbriar* is well known all over England. The branches, which are of a reddish cast, are all over closely armed with prickles; the flowers are single, and of a pale red colour, like those of the Common Wild Briar. The leaves constitute the value of this plant; for they are possessed of so grateful an odour, as to claim admittance for this sort into the first class of aromatic plants: the odoriferous particles they emit are sweet and inoffensive; and they bestow them in such profusion, especially in evenings or after a shower, as to perfume the circumambient air to a considerable distance. For this reason, plenty of Sweetbriars should be planted near much-frequented walks;

or if the borders of these are designed for more elegant flowering shrubs or plants, they may be stationed at a distance, out of view, and then they will secretly liberally bestow their sweets, to the refreshment of all. For nosegays, also, there is nothing more proper than sprigs of the Sweetbriar, when divested of its prickles; for they will not only have a good look as a fine green in the centre of a posy, but will improve its odour, let the other flowers of which it is composed be what they will.

Semi-double Sweetbriar differs in no respect from the Common, only that the flowers consist of a double series of petals that surround the stamina. The leaves are possessed of the same fragrance; but this sort is thought more valuable on account of the flowers, which, being possessed of more petals, make a better figure.

Double Sweetbriar. The number of petals are so multiplied in this sort as to form a full flower: and it seems to differ in no other respect from the other Sweetbriars. The flowers are red, and so large and double as to be equal in beauty to many of the other sorts of Roses. As by the fragrance of their leaves they afford us a continual treat during the summer months, as well as by their fair flowers at the time of blowing, all who pretend to make a Collection are careful of procuring plenty of this sort.

Double Blush Sweetbriar is a most valuable, and at present a very scarce, plant. It seems to have a tendency not to grow so high as the other sorts of Sweetbriars. The branches are green, and closely armed with strong prickles. The flowers are of a pale red or blush colour, and every whit as double as the Cabbage Provence Rose: it cabbages in the same manner, and is very fragrant. No one need be told the value of a Rose which has every perfection and charm, to the highest degree, both in the leaves and flowers, to recommend it.

Sweetbriar with Yellow Flowers. The flowers of this sort are single; the petals are of a bright yellow colour; but it differs in no other respect from the Common Sweetbriar.

6. CINNAMON ROSE. The *Varieties* of this species are, Single Cinnamon Rose, Double Cinnamon Rose.

The *Single Cinnamon Rose* is a much stronger shooter than the Double sort, which is better known. It will grow to be ten or twelve feet in height. The young branches are of a reddish colour. The flowers are single, and have the same hue as those of the Double. It is rather a scarce plant at present; on which account chiefly it is thought valuable.

The *Double Cinnamon Rose* will grow to about six or seven feet high, and the branches are many and slender. The prickles are pretty numerous, and the young shoots in winter are of a red colour, with a purplish tinge. This sort, which ushers in the flowery tribe of Double Roses, will be in blow sometimes pretty early in May. The flowers are small, but very double: they are of a purplish red, very sweet, and have a little of the smell of cinnamon, which occasions this Rose to be so called; and on that account only, not to mention their early appearance, this sort is desirable.

7. CAROLINA ROSE. The *Varieties* of this species are usually called, Wild Virginian Rose, Pennsylvania Rose, Pale Red American Rose.

The *Wild Virginian Rose* will grow to be nine or ten feet high. The branches are covered with a smooth red bark, and guarded by a very few prickles. It produces its flowers in August, when most of the other sorts are out of blow, and is by many valued for that reason. The flowers are single, of a red colour, are produced in clusters, and will continue blowing from the beginning of August until October. Neither is this the sole beauty this sort affords us; for the flowers will be succeeded by heps, which in winter appear like so many red berries all over the shrub. These heps serve as food for birds, and are therefore much frequented by thrushes and others of the whistling tribe, who will be ready to usher in, by their sweet warbles, the earliest dawn of spring. This tree grows wild in Virginia, and many parts of North America, from whence we receive the seeds, and propagate it not only on some of the above accounts, but because it is naturally an upright well growing tree, and makes a good figure in winter by its red and beautiful shoots.

The *Pennsylvania Rose* seems to differ in nothing from the former, except its size, it seeming to be a plant of lower growth; and the Pale Red sort occasions variety only from the lobes of the flowers.

8. APPLE ROSE. This species is a curiosity, not so much from the singularity of the shoots, leaves, or flowers, as fruit. The shoots, indeed, will be strong and bold, and in winter distinguish the tree from others by a degree of eminence. They are then covered with a smooth reddish bark; and the prickles which guard them are thinly placed, though those are very strong and sharp. Many think this tree has a good look in winter, and value it much on that account. As to the leaves, they are nearly the same as the other sorts of Roses; but are large and very hairy, and downy underneath. The flowers are single, of a red colour, and are succeeded by heps as large as little apples. To their account the value chiefly of this sort is to be placed; for being thus large, they occasion a singular look; and this is heightened by being all over beset with soft prickles. For use as well as beauty this sort is propagated by some; for these heps or fruit, when preserved, make a sweetmeat greatly esteemed.

9. HUNDRED-LEAVED ROSE. This is a very extenſive species, and includes all *Varieties* whose stalks are hispid, prickly, and have leaves growing on footstalks which are not armed with prickles; and whose flowers have oval, hispid germina and footstalks. Of this kind are, the Deep Red Provence, the Pale Red Provence, the Large Cabbage Provence, the Dutch Provence, the Childing Provence, the Moss Provence, the Great Royal Rose, the Blush Hundred-leaved Rose, the Dutch Hundred-leaved Rose.

The *Provence Roses* are all well known. The Red and the Pale Provence sorts differ, in that one is a deep, the other a pale red; the petals are larger and looser than the Cabbage Provence, and make varieties. The Cabbage Provence is the best of all the sorts; and if its commonness does not detract from its value, is inferior to no Rose. The Dutch Provence has a tendency to cabbage, and is of a deeper red than the Common Provence. The Childing is of lower growth than any of the other sorts, seldom growing to be more than four feet; it is naturally of upright growth, and the bark is brown and prickly. The flowers at first are globular, though they will afterwards open at top, and display their petals folded a little like those of the Belgic. All these are beautiful roses, and greatly ornamental either to shruberies or gardens.

The *Moss Provence* is a sort that has been sought after of late more than any of the others. Its branches are of a dusky brown, and they are all over closely beset with prickles. The flowers are like those of the Common Provence; though they have a stronger footstalk, and grow more upright. About the calyx of the flower grows a kind of moss, which is of a yellowish green colour, and by which it will be wholly surrounded. This Rose has not been many years known in England, and from whence it was first brought is uncertain. It seems to owe its excellence to the mossy substance growing about the footstalk and calyx of the flower; but were this as common as the other sorts of Provence Roses, that would be looked upon as an imperfection; for though this flower naturally is possessed of the same agreeable fragrance as the other Provence Roses, yet this mossy substance has a strong disagreeable scent, and is possessed of a clammy matter.

Great Royal Rose is one of the largest, though not the compactest, Roses we have. It will grow to be eight or nine feet high. The branches are brown, and have a number of prickles. The flowers are red, and possessed of a very grateful odour, and the petals very large. Upon the whole, this is a sort very much coveted, and is one of the best Roses in England.

The *Blush and Dutch Hundred-leaved Roses* differ in no respect, only that the flowers of one are of a paler red than those of the other; and both these sorts may contend for the prize of beauty with any of the Rose tribe. They seldom grow more than four feet high. The branches are green and upright, and have very few spines. The flowers are large, and exceedingly double: Each is composed of numerous short petals, which are arranged in so regular a manner as to form a complete flower; and it is on account of the extraordinary number of these petals that this Rose takes the name of Hundred-leaved Rose. We seem to do injustice to this Rose, when we do not pronounce it the fairest of the whole list; but when we reflect on the surpassing delicacy and beauty of many other sorts, we are obliged to give the preference to none.

10. GALLICAN ROSE. Under this title are arranged all those Roses whose branches and footstalks of the leaves are hispid and prickly, and whose flowers have oval, hispid germina, and grow on hispid footstalks. Of this kind are.

The Semi-double Red Rose,
The Old Double Red Rose,
The *Rosa Mundi*, or Variegated Rose,
The York and Lancaster Rose,
The Semi-double Velvet Rose,
The Full-double Velvet Rose,
The Blush Belgic Rose,
The Red Belgic,
The Blush Monthly,
The Red Monthly,
The White Monthly,
The Striped Monthly,
The Red Damask,
The White Damask,
The Blush Damask,
The Doubled Virgin,
The Marbled,
The Great Spanish,
The Yellow Austrian Rose,
The Copper coloured Rose,
The Double Yellow,
The Franckfort Rose.

11. The MUSK ROSE. The EVERGREEN sort is naturally a climbing plant, but if planted singly will form itself into a bush of five or six feet high: Its flowers are single, white, and fragrant.

Besides the Evergreen, there are two deciduous *Varieties* of this species, called, the Single Musk Rose, and the Double, or Semi-double Musk Rose.

Single Musk, or White Cluster, is a scarce and valuable Rose. The young shoots are covered with a smooth green bark, and are not possessed of many spines; those few they have are very strong, and of a dark brown colour. This sort produces its flowers in

August, in very large clusters; they are of a pure white; and the tree will continue to exhibit its succession of flowers until the frost puts a period to the blowing. The ends of the branches are frequently killed by the frosts in the winter; so that early in the spring they should be gone over with the knife, and all dead wood taken off, which would have an ill look, amongst the healthy leaves and young shoots.

The *Semi-double and Double Musk* or White Cluster Roses are late flowering sorts. They will begin blowing in August, and contiuue so till the frost puts an end to the glories of that season. The stalks are covered with a smooth green bark, which will be armed with a few very strong, brown, crooked spines. The flowers are of a pure white, and produced in large clusters, at the ends of the branches. These at present are not common, and are much coveted by the curious.

12. PENDULOUS-FRUITED ROSE grows only to about five or six feet high, sending forth several hispid branches from the bottom to the top. The leaves are composed of many oval folioles, arranged along the midrib, and their footstalks have few or no prickles. The flowers have oval, smooth, germina, grow on hispid footstalks, and are succeeded by long pendulent fruit, full of seeds.

13. The WHITE ROSE. The characteristics of this species are, the stalks and footstalks of the leaves are prickly, the flowers have oval, smooth germina, and grow on hispid footstalks. Of this kind, are,

The Double White Rose,
The Semi-double White,
The Dwarf White,
The Maiden's Blush Rose.

All the sorts of Roses are to be PROPAGATED, 1. By layers. For this purpose, in order to obtain plenty of them, a sufficient number should be planted for stools; and after these have been planted a year or two, they should be headed near the ground, which will make them throw out plenty of young shoots. In the autumn, these should be layered in the ground. The best way to do it is by a slit at the joint, though a gentle twist will often do as well, particularly for all the sorts of Monthly Roses, Damask Roses, and Sweetbriar, which will readily take if the bark be just broke, and will often send forth roots at every joint by the autumn following. Most of the other sorts do not strike root so freely; so that amongst them, by the autumn after layering, few will be found strong enough, and with root sufficient to be planted out to continue. However, in general, they will have roots, and oftentimes very good ones. In the autumn every layer must be taken up, the stools neated up, and a fresh operation performed on the young shoots that may have shot the preceding summer. The layers that have been taken up should be planted in the nursery, at no very great distance, and the sorts should be kept separate and booked, number sticks being made to the separate sorts, that they may be distinctly known. The Moss Provence and the Musk Roses do not strike root so freely by layers; neither does the Apple-bearing Rose; so that for all these sorts you must often wait two years before you take off the layers from the stools, and sometimes longer; which is the reason of these plants being rather scarce, they not being to be expeditiously propagated in plenty. 2. These trees may be propagated by suckers, which most of the sorts have a natural tendency to throw out; and these may be taken up, and the strongest and best rooted set out to stand, whilst the weakest may be planted in the nursery for a year or two, to gain strength. But here we must observe that the Moss Provence, Musk, and Apple-bearing Roses seldom throw out suckers; so that we must not wait for them from these sorts, but must get forward with our layering. 3. The Common Sweetbriar is to be propagated by seeds. These should be sown as soon as they are ripe, in a bed of common garden mould made fine. They generally remain until the second spring before they come up, and afterwards will require no other care than weeding until the spring following, when they may be taken up, and planted in the nursery at small distances; and in two or three years time they will be good plants for the shrubery wilderness, or hedges. And indeed as great quantities of these odoriferous plants are often wanted, this is the easiest and most expeditious way of raising them in plenty.

By seeds also the Burnet-leaved, Apple-bearing, and Red or White Scotch Roses may be raised; which are doubtless distinct species, and will preserve the sorts by seeds.

RUBUS.

LINNEAN Class and Order, *Icosandria Polygynia:* Each flower contains about twenty males and many females. There are eighteen SPECIES; four of which are applicable to our purpose:

1. RU'BUS *Frutico'sus:* The COMMON BRAMBLE; *a well known trailing plant;* common in most countries in Europe.

2. RU'BUS *Hi'spidus:* The CANADA BRAMBLE; *a trailing plant;* native of Canada.

3. RU'BUS *Cæ'sius:* The DEWBERRY or CÆSIUS; *a trailer;* native of moist places in most parts of England and Europe in general.

4. RU'BUS *Odora'tus:* The VIRGINIA RASPBERRY; *a deciduous shrub;* native of Virginia and Canada.

1. The COMMON BRAMBLE admits of the following *Varieties:*

The Double-blossomed Bramble, the Bramble without Thorns, the Bramble with White Fruit, the Cut-leaved Bramble, the Variegated Bramble.

The *Double-blossomed Bramble* differs in no respect from the Common Bramble, only that the flowers are very double. The stalks like that, are closely armed on all sides by strong crooked prickles, that turn backwards. They are, like that, channelled; and in the winter have some of a reddish purple colour, others green, some red on one side and green on the other. The leaves also are shaped like the hands, and are composed sometimes of three, sometimes of five lobes. They have their upper surface smooth, and of a fine green colour, whilst their under is of a whitish colour. The footstalks that support them are prickly, and a series of prickles are arranged all along the midrib of each lobe. They continue on the plants most part of the winter, at the beginning of which they are green; but after Christmas they turn brown, and seldom look well after. This is the description of the Common Bramble, and of the Double sort also, which differs in no other respect that in the doubleness of the flower. They are produced in the same manner at the ends of the shoots, each of which is exceedingly double. The petals are whiter; and as a profusion of these ornament the ends of most of the shoots in the same manner as the flowers of the Common sort, they make a show, and are beautiful beyond expression. It may be kept down and confined, to have the appearance of a flowering shrub. The flowers are succeeded by no fruit. It will thrive and flower exceedingly well under the drip of trees; so that for old plantations, this is an useful plant for the under shrubs, as it will flourish where hardly anything else will grow.

Bramble without Thorns is not near so strong a shooter as the Common Bramble, the shoots being more trailing and slender, perfectly smooth, and of a blueish colour; and on this account it is that this plant is held as a curiosity. A curiosity, indeed, it is; and many have expressed their agreeable surprize to find a Bramble that they could familiarly handle without hurt. The leaves of this sort have a blueish tinge, and the footstalks and midrib are entirely free from prickles. It flowers in the same manner as the Common Bramble, though the flowers are rather smaller; and are succeeded by black berries, on which the insects do not seem to swarm in such plenty as they do on the other sort.

Bramble with White Fruit is deemed curious only on that account, and has (says HANBURY) often given occasion to a hearty laugh, by a bull which has been made by many on their first seeing this fruit, who have cried out with surprize, "Here is a Bramble that bears white blackberries." It is, therefore, the colour of the fruit that makes this sort coveted, though the leaves are of a lighter green than any of the other sorts, and on that account make a variety among the leafy tribe.

Bramble with Cut Leaves differs from the Common only in that the leaves are cut in an elegant and beautiful manner. It affords a variety in no other respect; and those that are fond of such, are sure of meeting one in this, whose leaves being thin and elegantly cut, make the plant have a different look from the other sorts.

Variegated Bramble differs in no respect from the Common Bramble, only it is a weaker plant. The leaves are striped; and it is valuable only to those who are fond of variegated shrubs.

2. AMERICAN BRAMBLE. The shoots of this species are long, ligneous, procumbent, rough, and hairy. The leaves are trifoliate, naked, cut at the edges, serrated, and grow on hispid footstalks. The footstalks of the flowers also are hispid. They come out from the ends and sides of the branches in July and August; and are succeeded by round reddish fruit in the autumn.

3. CÆSIUS, Small Bramble, or DEWBERRY BUSH. The stalks of this sort are weak, slender, prickly, and trailing. The leaves are trifoliate, large, and usually of a dusky green colour. The flowers are whitish, come out from the ends and sides of the branches, in July and August, and are succeeded by large blue fruit, which will be ripe in the autumn, and of which an excellent wine is made.

All these sorts may be PROPAGATED by cuttings. They should be planted in the autumn, in a shady border, and by the autumn following they will be fit to remove. But as a crop from cuttings often fails, the best way will be to throw some mould over the shoots, as they strike in the spring; and when they have shot two or three feet farther, cover them afresh, and so on all summer. By this means, those parts that were first covered will have either struck root, or they, together with all the others, will be preparing to strike root; so that, being cut into lengths, and the parts before covered planted again in earth, and about three or four inches of the uncovered part being above ground, almost every one of the cuttings of this nature being thus prepared will grow, and thus plenty of plants may be soon obtained.

4. The VIRGINIA RASPBERRY. All the sorts of Raspberries are species of *Rubus*, and are propagated for their fruit; but this sort is cultivated solely to mix

with our flowering shrubs. It rises from the ground like the Common Raspberries, though it will naturally grow higher; but its growth is either higher or lower in proportion to the nature of the land or situation, as it will grow higher by two or three feet in a deep, rich, moist soil, than it will in a soil of the opposite nature. The stalks are of a brown colour, and wholly without prickles; and the strongest will divide into several smaller branches. The leaves are exceedingly large for a shrub of that height; from whence the plant derives no small beauty. They are broader than they are long, and of a fine green on both sides, the upper being of a dark, the under of a lighter colour. Each is divided into an uncertain number of lobes, which are serrated, and end in acute points. These leaves grow alternately on footstalks that are of a proportionable length and strength to the size of the leaves, they being often eight or nine inches broad, and seven or eight in length. The flowers are produced in July, in plenty, at the end of the stalks; and the succession will be continued for often more than two months; though they are always the most beautiful on their first appearance. They are of a purplish red, a colour which is very desirable at that time, when most of the other shrubs that are in blow will have yellow flowers. Each stands on a long footstalk; and many of them being collected into a kind of loose bunch, they make a tolerable figure. They are seldom succeeded by any fruit with us; and when this happens, it is of no flavour, and on that account of no value.

It is easily PROPAGATED from the suckers, which it sends forth in such abundance, that from a few plants, in a few years, almost any desired quantity may be obtained: nay, so fast do they creep and send forth stalks on all sides, that unless they are constantly taken up as they grow, they will soon overspread and choke all smaller plants that grow near them. The best time for taking off the suckers is the autumn: though they will grow very well if planted either in the winter or spring.

RUSCUS.

Linnean Class and Order, *Dioecia Syngenesia:* Male flowers containing three stamina, and female flowers containing one pistil; upon distinct plants. There are four Species:

1. Ru'scus *Aculea'tus:* The Common Butcher's Broom; *an evergreen shrub;* native of England, France, and Italy.

2. Ru'scus *Hypophy'llum:* The Broad-leaved Butcher's Broom; *an evergreen shrub;* native of Italy.

3. Ru'scus *Hypoglo'ssum:* The Hypoglossum; *an evergreen shrub;* native of Italy and Hungary.

4. Ru'scus *Racemo'sus:* The Alexandrian Laurel; *an evergreen shrub;* native place not known.

1. The Common Butcher's Broom will rise with tough, ligneous, streaked, green, spreading stalks, to about a yard in height. These proceed from a large, white, tender, creeping root, which will, if the plant has remained long, be found very deep in the ground. The leaves are of an oblong figure, of a dark dusky green colour, and grow alternately on the stalks. Their edges are entire; they are of a thick stiff consistence; and their points are prickly, and as sharp as needles. The flowers grow on the middle of the upper surface of the leaves, and will be ripe in June. They are small and greenish; and the females are succeeded by large beautiful red berries, of a sweetish taste. This plant is of great use to the butchers, who gather it to make different besoms, both for sweeping of their shops and cleaning of their blocks; from whence it has the appellation of Butcher's Broom. The young tender shoots of this shrub, in the spring, may be eaten like hop-tops, or asparagus, and some people are very fond of them. The seeds and roots are much used in medicine.

2. The Broad-leaved Butcher's Broom has large white roots, with long thick fibres, and from these

rise pliable stalks, which will grow to be near a yard high. These stalks are of a very fine green colour, and are very tough and numerous. They produce their leaves in an alternate manner, are of a very fine shining green colour, and of a thick consistence. They are longer and broader than the other sort; their figure is oval, and they end in acute points. The flowers of this sort grow on the under surface of the leaves, near the middle. These are small, and of a greenish white. They are produced in July; and the seeds that succeed them are small and red, and will be ripe in winter.

3. The **Hypoglossum** is the lowest of al. the sorts, as the stalks seldom get to above a foot high, and has very few pretensions, indeed, to be called a shrub; nevertheless, it may justly claim a place at the edge at least of all evergreen shruberies. The roots are nearly of the same nature with the other sorts, and the stalks are numerous and pithy. They are of a dull green colour, and striated; and they produce their leaves in an irregular manner, being sometimes alternate, whilst others again may be seen standing opposite by pairs. These leaves are of a lanceolated figure, and are of the same dull green colour with those of the stalks. They are from three to four inches long, and about one broad. They grow without any footstalks, being narrow at both ends, and their edges naturally turn towards the centre of the upper surface. They are free from serratures; and from the stalk or base of the leaves run several veins the whole length, which gradually diverge from the middle, but approach again in the same manner until they all end in the point of the leaf. Each of these leaves produces another small leaf of the same shape, from the middle of its upper surface; and from the bottom of these small leaves are produced the flowers. These will be ripe in July, are small and yellowish, and the fruit that succeeds them is large and red, and will be ripe in winter.

4. The **Alexandrian Laurel** has the same kind of white scaly roots with long thick fibres as the others, and the branches are very numerous and pliable. They are smooth and round, of a shining green colour, and produce others smaller, alternately from the bottom to the top. They will grow to be four or five feet high,

and their pliable branches are nevertheless brittle near the bottom. The leaves grow chiefly on the smaller side shoots, and on these they are placed alternately. They sit close to the branches, are smooth, of a delightful shining green colour, and have several small veins running the whole length, diverging from the middle, but approaching again to end at the point. They are from two to three inches long, and about one broad, are of an oblong lanceolated figure, and end in very acute points. The flowers are produced in long bunches, at the ends of the branches. Each of them is small, and of a yellowish colour; and they are succeeded by large red berries, which will be ripe in winter.

There is a *Variety* of this sort with red flowers. "This species of *Ruscus*," says Hanbury, "is supposed to be the Laurel which composed the wreaths worn by the antient victors and poets; and indeed with good reason, not only on account of its pliableness, by which it might be easily wrought for such purposes, but the wreaths on the antient busts, &c. seem to figure to us the leaves and slender branches of the plant we are treating of."

There is another sort of *Ruscus*, which has oval acute-pointed leaves, growing by threes round the stalks, and which produce the flowers and fruit from the midrib, on the under surface; also another sort, with oval acute-pointed leaves, which produces the flowers from the midrib, on the upper surface. But as these are only Varieties of the above sorts, have the same kind of roots, produce the same kind of slender pliable branches, and have their flowers succeeded by nearly the like kind of berries, nothing more need be said of them.

All these sorts may be easily PROPAGATED. 1. After having obtained a plant or two of each, their roots will increase so fast, and will proportionally send forth such a quantity of stalks, that each of them will soon form itself into a little thicket: these, then, are to be taken up and divided: and from one original root or off-set many will soon be produced. The best time for this work is early in the autumn; though they will grow very well i divided and removed in the spring, or any time in the winter. 2. These plants are also to be encreased by seeds. This, however, is a slow way; but must, nevertheless, be practised, when the plants cannot be obtained. The beds for their reception must be made fine, and cleared of the roots of all weeds. They will require no other compost than that of good common garden mould. They should be sown an inch and a half or two inches deep, and the beds should be neated up to lie undisturbed, for they will not come up before the second, and sometimes the main crop the third, spring after sowing. All the summer they should be kept clean from weeds; and if the beds wear away so as to endanger the seeds being laid bare, a little fine mould should be riddled over them, to supply what may be lost by wear in weeding, settling, &c. After they are come up, they will require no other care than weeding, for they are very hardy; and when they come too thick in the spring after the frosts are over, the strongest should be drawn out and planted in beds six inches asunder. This will make room for the others to flourish; and though mention is made of removing these plants after the frosts are over, it is not because they are tender and subject to be destroyed by it, but if they are removed in the autumn, or early in the winter, being then small, the frosts generally throw them out of the ground, to the great danger, if not intire loss, of the whole stock of the new-removed seedlings. This, however, is considered by few Gardeners who have not paid dear for their experience, and is what is chiefly recommended by our modern authors, to transplant seedlings of most sorts from the beds in October; which, indeed, would be an excellent month, were no frosts to ensue. But good thought and experience, by fatal practice, have taught the Gardener now, to defer the removing his small seedlings until the spring, when they will not be liable to be turned out of their warm beds when they should least like it, by the rigours of the winter. But to return: After the seedlings are two or three years old, whether they have been removed or not, they will by that time be good strong plants, fit for removing, and may be then taken up and planted out.

SALIX.

LINNEAN Class and Order, *Dioecia Decandria*: Male flowers containing two stamina, and female flowers containining one pistil, upon distinct plants. There are several SPECIES; fifteen of which are cultivated in this country.

1. SA'LIX *A'lba*: The COMMON WHITE WILLOW; *a deciduous tree;* common about towns and villages in most parts of Europe.

2. SA'LIX *Vitelli'na*: The GOLDEN WILLOW; *a low deciduous tree;* native of England and most parts of Europe.

3. SA'LIX *Purpu'rea*: The PURPLE WILLOW; *a deciduous tree;* native of England and the South of Europe.

4. SA'LIX *Penta'ndria*: The SWEET WILLOW; *a deciduous tree;* native of mountainous and marshy swampy grounds in most parts of Europe.

5. SA'LIX *Babylo'nica*: The WEEPING WILLOW; *a deciduous tree;* native of the East.

6. SA'LIX *Hermaphrodi'tica*: The SHINING WILLOW; *a deciduous tree;* grows about Aston in Cumberland, and also Upsal in Sweden.

7. SA'LIX *Tria'ndria*: The TRIANDROUS WILLOW; *a deciduous tree;* native of Switzerland and Siberia.

8. SA'LIX *Phylicifo'lia*: The PHYLICA-LEAVED WILLOW; *a low deciduous tree;* native of the North of Sweden.

9. SA'LIX *Amygdali'na*: The ALMOND-LEAVED WILLOW; *a deciduous tree;* native of England and most parts of Europe.

10. SA'LIX *Hasta'ta*: The HASTATED WILLOW; *a deciduous tree;* native of Lapland and Switzerland.

11. SA'LIX *Fra'gilis*: The CRACK WILLOW; *a deciduous tree;* native of England and the North of Europe.

12. Sa'lix *He'lix:* The Rose Willow; *a low deciduous tree;* native (though not common) of England and the southern parts of Europe.

13. Sa'lix *Ca'prea:* The Sallow; a well known *low deciduous tree;* native of England and most parts of Europe.

14. Sa'lix *Vimina'lis:* The Ozier; *a low deciduous tree;* native of England and most parts of Europe.

15. Sa'lix *Glau'ca:* The Glaucous Willow, or Alpine Sallow; *a deciduous shrub or tree;* native of the Alps of Lapland and the Pyrenees.

1. The White Willow. This is a tall growing tree, and being universally known needs no description. The silvery elegance of its leaves would render it very *ornamental,* were it not for its too great commonness: it is a quick grower, and its wood is *useful* when lightness and a cleanness of grain is required*.

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* Hanbury, speaking of Aquatic Forest Trees, says, "The sorts used for plantations of these trees have hitherto been our Common White and Red Willow. These, however, seem now to give place to more sorts, which have been lately introduced. A few years ago I saw in the public papers an advertisement of a Willow which would grow large enough for masts of ships, &c. in twenty or thirty years; and in another paper there was an account, that these trees might be seen in full maturity at one Squire Angel's, about three miles from Westminster Bridge. I went to examine them, but when I came, found them the Common White Willows, which, having liked the situation, had grown to a great size and beauty. I enquired out the author of the advertisement, but found he knew nothing of the nature of these Willows, and that he had his account from a basket maker near Westminster Bridge. Upon applying to the basket maker, he disvowed knowing anything of the trees growing by Mr. Angel's, but said he had two sorts of Willows, which would answer in every respect to the first advertisement; that they were of all others the freest shooters; that they were not so subject to rot in the sides as the large White Willow Tree; but that they would grow sound to timber, fit for masts of ships, &c. in less than thirty years. He added, that he had cuttings many years ago brought him from the coast of France, by a Captain whose name I have forgot. I immediately procured some cuttings of these sorts, which grow to a miracle, and seem as if they would answer the promised expectation; so that these now are the trees of which our future timber plantations should consist: nay, whether they are designed for the basket makers or for hurdles, they ought to have their share; and should always be preferred to be planted out for standards for lopping, by the sides of rivers, rills, ditches, &c. The cuttings of these two sorts have been dispersed into

2. The **Golden Willow** may be admitted into ornamental plantations, not for any extraordinary figure these trees will make in summer, but from the show they make in winter; for their bark is smooth, and of a clear yellow; and in that season they have a singular and striking effect among other trees. This will not grow to near the size of the other sort.

3. The **Purple Willow** or **Red Willow** is a free shooter, and will grow to a size almost as large as the Common White Willow. A few of these only should be admitted into our plantations; for they have no singular look in summer; but in winter their bark appears of a red colour, which makes a pretty variety among other trees at that season: but it is, nevertheless, not near so striking as the yellow sort.

4. The **Sweet-scented Willow**. This will grow to be a large timber tree, and the branches are covered with a smooth brown bark. The leaves of this sort resemble those of the Bay Tree, and are by far the broadest of any of the sorts of Willows. They are smooth, and have their upper surface of shining green; but their under surface is paler, and they are serrated at their edges. They emit, especially when bruised, a grateful odour; so that as an aromatic it claims a place in these plantations among others of its own growth. Indeed it deserves it; for air will frequently be perfumed by the fragrance of its leaves after a shower to a considerable distance; so that it will readily join with other aromatics in perfuming the air with their spicy odours. It delights in a very wet situation*.

5. The **Weeping Willow** of Babylon will grow to be a large tree; and no tree is more proper to be planted by rivers, ponds, over springs, &c. than this;

almost every quarter of England; so that there is no doubt but that in a few years the planting of them alone for timber will become general, as they may be encreased at pleasure by every slip or twig."

In March 1786 we measured a Willow growing near the Cathedral in Lichfield, whose girt was near fourteen feet; then in full growth.

* On the 4th of December 1793, the Sweet Willow was throwing off its seed! the tops of the trees white with down, bearing full-grown seeds, blowing about as snow! *Q.* Was this owing to the mildness of the season?

for its slender branches are very long and pendulous; the leaves, also, are long and narrow; and when any mist or dew falls, a drop of water will hang at the end of each of these leaves, which, together with the pendulous branches and leaves, cause a most pleasing appearance. Lovers garlands are said to have been made of the wreaths of this Willow, the branches of which are very slender and pliable; and the plant itself has always been sought after for ornamental plantations, either to mix with others of the like growth in the largest quarters, or to be planted out singly over springs, or in large opens, for the peculiar variety they will occasion by the elegance of their outline.

6. **Shining Willow** is a large growing tree, sending forth several slender branches, which hang down, and are covered with a pale brown bark. The leaves are smooth, glandulous, serrated, and of a yellowish green colour. The flowers are numerous hairy catkins, and the male flowers have two stamina only. They appear early in the spring; and the females are succeeded by downy seeds, like the Common Willow.

7. **Triandrous Willow** is a large growing tree, sending forth numerous erect, flexible branches, which are covered with a grayish bark. The leaves are oval, smooth, spear-shaped, acute-pointed, serrated, green on both sides, and eared at their base. The catkins are long, narrow, loose, and appear early in the spring. This sort is planted by the basket makers, to mix with other kinds for their different sorts of work.

8. **Phylica-leaved Willow.** This is a tree of rather lower growth than the former. The branches are numerous, flexible, tough, and serviceable for several articles in the basket way. The leaves are spear-shaped, smooth, serrated, and waved on their edges. The flowers are long catkins, which come out early in the spring from the sides of the branches; and they soon afford a large quantity of down, which is wafted about with the winds to a considerable distance.

There is a *Variety* of this with broad leaves.

9. **Almond-leaved Willow.** This is a Willow of the middle size, sending forth numerous flexible tough branches, covered with a light green bark. The leaves are spear-shaped, smooth, serrated, acute, eared at

their base, and of a light green colour on both sides. The flowers are oblong catkins, which turn to a light down in the summer.

There are several sorts of this species, that are of inferior value to this, which is generally distinguished from the others by the name of the *Old Almond-leaved Willow*. The branches are very tough and flexible, and when planted in the Ozier way, and grow to be one year's shoots from the stools, are very strong, and highly serviceable for the different purposes of basket making.

10. **Hastated Willow.** This is a middle-sized tree for the Willow kind, sending forth several long, green shoots from the stools, which are full of pith, but nevertheless tough, and serviceable to the basket maker. The leaves are nearly oval, acute, smooth, serrated, sit close to the branches, and have broad appendices at their base. The flowers are an oblong, yellow catkin, and come out in the spring from the sides of the young shoots, almost their whole length.

11. **Crack Willow** is another middle-sized tree for the Willow kind. The branches are very brittle, and covered with a brownish bark. The leaves are oval, spear-shaped, long, smooth, serrated, green on both sides, and have glandulous footstalks. The catkins are long, slender, and the scales are loosely disposed.

There is a *Variety* of this species with a yellow bark, which it casts every year, called the *Almond-leaved Crack Willow*. Both sorts are unfit for the basket makers use, being very brittle; on which account this species gained the appellation of Crack Willow.

12. **Rose Willow.** This is of much lower growth than the former. The body of the tree is covered with a rough, yellow bark. The branches are upright, tough, and of a reddish colour. The leaves are spear-shaped, narrow, smooth, of a blueish green colour, and, towards the upper part of the branches, are nearly opposite to each other. The flowers come out from the sides of the branches, and numbers of them are joined together in a rose-like manner. They are of a greenish white colour, and have a singular and beautiful look.

There are two or three *Varieties* of this species. The leaves of one are downy underneath; the stalks of another are brittle, and the leaves green on both sides; whilst another has its leaves of a light green on the upper surface, and glaucous underneath. They are all low growing plants, and seldom cultivated for use.

13. **Sallow.** The Sallow is well known all over England, and delights in a dry rather than a moist soil. It is a tree rather below the middle growth. The branches are numerous, smooth, of a dark green colour, and their chief use is for hurdle wood and the fire; though the trunk, or old wood, is admirable for several uses in the turnery way. The leaves are oval, rough, waved, indented at the top, and woolly underneath. The catkins are very large, yellow, appear early in the spring, and are much resorted to by the bees, on their first coming out of their hives at that early season.

There is a *Variety* of this species with long leaves, which end in acute points; and another with smooth leaves, beautifully striped with white, called the *Striped Sallow*.

14. **Ozier** is a tree of rather low growth, though the shoots grow amazingly long and strong in one year from the stools. The leaves are spear-shaped, narrow, long, acute, almost entire, of a blueish green on their upper side and hoary underneath, and grow on very short footstalks. This is the most propagated of all the kinds for basket making: it admits of several sorts of different value, but all are nevertheless useful to the basket maker.

The *Varieties* usually go by the names of the *Green Ozier*, the *Old Basket Ozier*, *Welsh Wicker*, &c. &c. &c.*

15. **Glaucous Willow.** This is a low Alpine Willow, of little use for ornament or profit. The leaves are oval, oblong, intire, of a glaucous colour, and possessed of fine hairs on their under side. The catkins are large, oval, of a white colour, and appear about the time of those of the Common Sallow.

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* For the management of Ozier Beds, see Vol. I. Article Woodlands.

All the **Salices** may be **propagated** by planting the cuttings, which, may be done at all times of the year, for they will grow if it is in summer; though the best season is the winter, or early in the spring, just before they begin to shoot. The cuttings should be of the last year's wood, should be in height in proportion to their thickness, and always ought to be planted in an upright position.

SALSOLA.

Linnean Class and Order, *Pentandria Digynia*: Each flower contains five males and two females. There are sixteen **Species**; one only of which is adapted to our Collection.

Sa'lsola *Frutico'sa*: The **Shrubby Glasswort**, or the **Stonecrop Tree**; *an evergreen shrub;* native of the sea coasts of England, France, Spain, and Persia.

The **Stonecrop Tree** is a shrub of about four or five feet growth. It will shoot rather higher, if permitted; but is never more beautiful than when about a yard high. The branches are numerous, naturally grow upright, are covered with a gray bark, and are very brittle. As to the leaves, they are very much like the Common Stonecrop of our walls, which is well known, being narrow, taper, and fleshy like them. They are of the same light pleasant green, and the branches are stored with them in plenty. The flowers make no show; neither is there any thing that is desirable to the Gardener that succeeds them. This is a very hardy shrub; but, as we have introduced it as an Evergreen shrub, it may not be improper to give a hin t or two for its being properly stationed. It should be set in a well sheltered place; for although the leaves remain on all winter, yet our severe black frosts suddenly coming on them, when in an open exposed place, destroy them, and cause them to turn black; and although the shrub will shoot out again early in the spring, yet the black destroyed leaves will look very disagreeable all winter, and be as blots among others that are less subject to these disasters. One hint more may be necessary; and that is, whenever this shrub is planted, either in small or large gardens, among deciduous or evergreen trees, not to circumscribe the tree, with strings or bass mattings, in order to confine the branches and keep them closer: this will effectually destroy all the branches and leaves, if not the whole plant; for being thus closely confined, the free admission of the air will be excluded, which will cause these succulent leaves to rot and decay. This precaution is the more necessary, as their upright branches being heavy laden with such plenty of succulent leaves, are subject to be blown down from the bottom by the high winds: and as they then must of course look irregular, and may probably overspread some little plant that grows near them, it is a common thing to tie them up again to the other branches. This custom, however, ought never to be practised; but when any of them happen to be blown down in that manner, they should be taken off and thrown away.

Nothing is more easy than the PROPAGATION of the Stonecrop Tree; for it is encreased by layers, cuttings, and suckers. In short, if some of these shrubs are planted, they will soon send forth many stalks from the roots; and if the whole be then taken up, these, without any other trouble, may be divided, and will each of them be a good plant: and thus, in a few years, from a plant or two of this shrub, numbers may be obtained.

SAMBUCUS.

LINNEAN Class and Order, *Pentandria Trigynia*: Each flower contains five males and three females. There are four SPECIES; three of which are here treated of; the fourth *Sambucus Ebulus*, or Dwarf Elder, is an herbaceous plant.

1. Sambu'cus *Ni'gra:* The Common Elder; *a deciduous shrub or tree;* common in most parts of England, but is said to be originally a native of Germany.

2. Sambu'cus *Canade'nsis:* The American Elder; *a deciduous shrub;* native of Canada, Pennsylvania, and Virginia.

3. Sambu'cus *Racemo'sa:* The Mountain Elder, or the Mountain Red-berried Elder; *a tall deciduous shrub;* native of the mountainous parts of the South of Europe.

1. The Common Elder admits of many *Varieties:*
The Black Elder,
The White-berried Elder,
The Green-berried Elder,
The Parsley-leaved Elder,
The Gold-striped Elder,
The Silver-striped Elder,
The Silver-dusted Elder.

The *Common Black Elder* is too well known to require any description. It will grow to thirty feet high, with a large trunk; and in this case its wood is very valuable. The leaves and flowers have a strong and disagreeable smell, which renders it improper to be planted near buildings or walks which are much frequented; but if they could be planted singly, or a small clump of them, at a distance from any place of resort, there is no tree in the world will make a grander figure, or be more striking when in blow, for at that time they will be covered all over with large bunches of white flowers, which will assume an air of majesty at that distance, equal to any of the flowery tribe. "Neither may a few of them only be stationed in this manner; but any acute corner of the plantation, that shews itself at a distance, may end with one of these trees; for there it will display its gaudy pride when in blow, and the eyes of all be feasted by its delicious appearance, whilst the sense of smelling is no way incommoded by its strong disagreeable scent."

The *White-berried Elder* differs from the former in that the berries are whiter; the bark, also, of the young shoots is whiter; the buds, likewise, at their first appearance, are inclined to a whiter colour; the leaves, too, are of a paler green; and the plant in general has not such a strong disagreeable scent, though it nevertheless has a proportionable share. A plant or two only of this sort is to be admitted, merely for variety; though where they are required for the sake of the berries to make wine, a hedge of them may be planted, in a place that is little frequented, and they will plentifully furnish the owner with berries for his purpose.

Green-berried Elder differs in that the berries are green; the bark also of the young shoots, is of a darker gray than that of the White; and the buds, at their first appearance, have nearly as dark a colour as that of the Common Elder. We must have only a plant or two of this sort for variety; and where the berries are wanted for wine, a hedge of them may be planted in some distant place, in the same manner as those of the White sort.

The *Parsley-leaved Elder* varies in no respect from the Common sort, except in the nature of the leaves; which are laciniated in such a manner as to resemble the leaves of some sorts of parsley. These leaves occasion a wonderful variety in shrubery quarters among the leafy tribe, and on their account the plant is deemed worthy of a place in any Collection; though the flowers possess the same nature with the Common sort, and emit the same disagreeable scent.

The *striped* sorts are distinguished by their different coloured stripes; whilst the Silver-dusted kind is remarkable for leaves finely powdered or dusted over, in a pounce-like manner, causing thereby a very beautiful and striking appearance.

2. The AMERICAN ELDER is of a lower growth than any of the above sorts, seldom rising higher than eight or ten feet. The young shoots are of a reddish colour. The leaves on the lower part of the plant are trifoliate; others are composed of about two or three pairs of folioles, terminated by an odd one. These folioles are serrated, and of a pleasant green colour; neither do they emit so strong a scent as any of the other sorts. The flowers are produced in the same manner as the folioles; and are succeeded by berries of a reddish colour. Though these berries have not quite such a strong disagreeable taste as the Common Elder berries, yet they have a kind of physical flavour: never-

theless, they are liked by some persons, who are as fond of them as they are of some sorts of fruit. What was said of the first sort, recommending its being planted singly, or in small clumps at a distance, will hold good in all these sorts, which when in blow will equally have the same noble appearance as that, except the American, which is of lower growth, and consequently of less figure than the others, and as such less proper for the purpose.

3. The Mountain Elder will grow to about ten or twelve feet high, and is a tree that is with great justice universally admired. The bark of the young shoots is of a reddish colour, and the buds in winter will be very large and turgid, and of a still deeper red. The leaves are pinnated with an odd one; their folioles are serrated; they are placed at a good distance on the midrib, which is pretty long; and they die to a reddish colour in the autumn. The reddish coloured branches, with their large turgid buds, have a singular and noble look in winter amongst other trees; and in the spring, as flowering shrubs, these trees seem to attempt to vie with any of the flowering tribe; for in April, and the beginning of May, they will produce their bunches of flowers at the ends of every joint of the last year's shoots. These bunches of flowers are of an oval figure; a figure in which compound flowers are not commonly produced. They are not, however, of so clear a white as any of the other sorts, being tinged with green; and although the tree will be covered with them, they have not the same striking appearance; but this defect is made amends for by the peculiar form which they assume, and the scarcity of the plant itself. Were there nothing but the above recited properties to recommend this shrub, it might justly claim admission in plenty into our choicest plantations: but these are not all its beauties; what remains is much more striking and engaging; for these oval bunches of flowers are succeeded by oval bunches of berries, that are of a deep scarlet colour. A crop, indeed, does not always ensue; but when it does, no tree is more singularly beautiful than this is rendered by them, chiefly occasioned by their colour and form, which any one must conceive to be delightful,

All the sorts of Elder are PROPAGATED by cuttings. These should be of the last year's shoot, and each cutting should consist of three joints; two of which must be in the ground, whilst the third is left above, to make the shoot. October is the best month for this business; and almost any soil will do, though the moister it is the better. These cuttings may be either planted very close, and removed the autumn following into the nursery ground, or they may be planted a foot or more asunder, and then they will be of a sufficient distance until they are finally taken up, which may be any time after two years. Thus easy is the culture of these plants when known.

SMILAX.

LINNEAN Class and Order, *Dioecia Hexandria*: Male flowers containing six stamina, and female flowers containing three pistils, upon distinct plants. There are fourteen SPECIES; eight of which are as follow:

1. SMI'LAX *A'spera*: The ITALIAN SMILAX, or COMMON ROUGH BINDWEED, or PRICKLY BINDWEED; *a low climber*; a native of Italy, Spain, Sicily, and France.

2. SMI'LAX *Exce'lsa*: The ORIENTAL SMILAX; *a lofty climber*; native of many parts of the East.

3. SMI'LAX *Sarsapari'lla*: The PERUVIAN SMILAX, or SARSAPARILLA; *a climber*; native of Peru, Mexico, and Virginia.

4. SMI'LAX *Rotundifo'lia*: The CANADA SMILAX; *a climber*; a native of Canada.

5. SMI'LAX *Laurifo'lia*: The LAUREL-LEAVED SMILAX; *a climber*; native of Virginia and Carolina.

6. SMI'LAX *Tamo'ides*: The BRIONY-LEAVED SMILAX; *a climber*; native of Carolina, Virginia, and Pennsylvania.

7. SMI'LAX *Lanceola'ta*: The LANCE-LEAVED SMILAX; *a climber*; native of Virginia.

8. SMILAX *Herbacea*: The IVY-LEAVED SMILAX; *a climber;* native of Virginia and Maryland.

1. The ITALIAN SMILAX is possessed of a long, creeping, white, fleshy root, which sends forth many slender, angular stalks, armed with strong, short, crooked spines, and having claspers. If any thing is near for it to climb on, it will, by such assistance, arrive at the height of ten or twelve feet. The leaves are cordated, end in acute points, are of a fine dark green colour, indented, have nine longitudinal veins, have their edges beset with some short spines, and are placed on tolerably long tough footstalks. The flowers make no figure: They are white, and are produced from the wings of the stalks, in small bunches, in June or July; and the female flowers will be succeeded by round red berries.

There is a *Variety* of this species which produces black berries; and from which it differs in no other respect; and which occasions its being called by Gardeners the *Black-fruited Rough Bindweed.* There is also another sort with brown fruit.

2. ORIENTAL SMILAX is a lofty climber; for being planted near pretty tall growing trees, it will ascend to their very tops, and proudly, by such assistance, shew itself to a great distance. The roots are thick, white, and fleshy; and the stalks are angular, and armed with spines. The leaves are of a pleasant green colour, and are nearly of a sagittated figure. They are possessed of no spines, have longitudinal veins, and their footstalks are tolerably long and tough. Their flowers are white, and are produced in small bunches, in June and July; and the females are succeeded by round red fruit in their own countries, but not with us.

3. PERUVIAN SMILAX, or SARSAPARILLA, has also white, thick, fleshy roots. These send out angular stalks, that are armed with sharp spines; but they will not climb up trees to near the height of the former. The leaves are smooth, being unarmed with spines. They are retuse, oval, cordated, of a strong green colour, have three nerves, and grow on strong rough footstalks. The flowers are produced in small bunches, from the sides of the branches. They are of little

figure, and the females are succeeded by a small, round, red fruit, where they grow naturally.

4. **Canada Smilax** has long creeping roots, which send forth round slender stalks, that are thinly guarded with sharp straight spines. The leaves are reniform, cordated, and have no spines. They are broader than they are long, have five strong nerves, and short footstalks, from each of which grow two slender claspers. The flowers are produced in small bunches, in June and July. They will be succeeded by a small berry, which will not come to perfection here.

5. **Laurel-leaved Smilax** has round taper stalks, that are beset with spines. The leaves are of a strong green colour, and a thick consistence. They have no spines, have three nerves, are of an oval lanceolate figure, and are about the size of those of our Common Bay Tree. The flowers are produced in small round bunches, in June and July, from the wings of the stalks, and these are succeeded by small black berries in the autumn. This sort is rather of a tender nature, and unless the soil be naturally dry and warm, and the situation well sheltered, they will be pretty sure of being killed in the winter.

6. **Briony-leaved Smilax** has large, fleshy, white roots, which send forth round, taper, prickly stalks. The leaves are oblong, heart-shaped, have no spines, but have many veins running lengthways. Their upper surface is of a fine strong green colour, and, being tolerably large, they make a goodly show. The flowers are produced in July, in small loose bunches, and are succeeded by black berries.

7. **Lance-leaved Smilax.** The stalks are slender, taper, and free from prickles. The leaves are spear-shaped, pointed, and unarmed with spines. The flowers come out in small clusters, and are succeeded by red berries.

8. The **Ivy-leaved Smilax.** The stalks are angular, herbaceous, unarmed with spines, but possessed of claspers, by which they lay hold of anything near them for support. The leaves are oval, free from spines, seven-nerved, and grow on footstalks. The flowers of this genus make no show, being possessed of no ornament

except the segments of the calyx. Those of this species are very small, and are collected in small umbels. They appear in June; and are succeeded by roundish berries, which seldom ripen in England.

These sorts are all easily PROPAGATED; indeed they will propagate themselves, if a plant or two of each sort can be obtained; for they are possessed of long creeping roots, which run under the surface of the ground, and will, both near the main plant and far off, send up young ones; which being taken up in the autumn or spring, or in any time of the winter, will be good plants for use. Thus will these plants by nature furnish you soon with plants enough for your purpose, if one or two of each can be first procured, and planted in a light good soil, in proper beds prepared for the purpose, under warm hedges, or amongst trees in well sheltered places.

SOLANUM.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are forty SPECIES; one of which, though common, claims our attention.

1. SOLA'NUM *Dulcamd'ra*: The WOODY NIGHTSHADE, or the BITTERSWEET; *a ligneous climber*; native of England and most parts of Europe.

The WOODY NIGHTSHADE. Were it not for the commonness of this plant, it would deservedly claim a principal place in our esteem, as one of those sorts that require supports to set them off; for besides the flowers, which are of an exquisite fine purple, and grow in bunches, it has many beauties to recommend it to our observation and care. The leaves stand on large footstalks, and the upper ones are of a hastated figure. Their beautiful purple flowers will be produced in small clusters, in June and July; and they are succeeded by oblong red berries, which will be ripe in autumn. This is the Common sort, which is of all the most beautiful, though hardly ever propagated. The *Varieties* of it, however, are in great esteem with most people, and of these there are, 1. A Variety with *white flowers*, which is much coveted on that account; and although these flowers are not so beautiful as the purple ones, yet the sort being a rare plant, makes it desirable; and this is the sort that is cultivated, and which differs in no respect from the purple, only in its white flowers, thereby pleasing the spectator by the variety it affords. 2. The next remarkable Variety of the Woody Nightshade is that with beautifully *variegated leaves*. These plants are sedulously propagated for the sake of their finely striped leaves; so that there is scarcely a Nurseryman who does not raise plenty of them for sale amongst other shrubs; and they are so generally liked, that his disposing of them will be pretty certain. This plant, as has been observed, is only the Common Woody Nightshade with the leaves delightfully variegated, its flowers being of the same fine purple, and the fruit that succeeds them exactly the same. 3. Another Variety has *thick leaves*, which are *very hairy*. This sort grows chiefly in Africa, and must have a warm situation to live through our winters. It is, however, a very fine plant, and where such a situation is not found, ought to be treated as a greenhouse plant.

All these sorts are easily PROPAGATED by cuttings; for they will grow, if planted in any of the winter months, in almost any soil or situation, and will be good plants for removing by the autumn following. If the owner has only a plant or two of these, which he is desirous of multiplying with certainty, let him lay the young stalks upon the ground, and draw over them a little soil, and they will effectually be good plants by the next autumn: and this will be the surest way, as cuttings of most sorts, though they will for the most part take very well, are often attended with much hazard. The Variegated sort must be planted upon a poor soil, or it will be in danger of running away from its colours.

SORBUS.

LINNEAN Class and Order, *Icosandria Trigynia*: Each flower contains about twenty males and three females. There are three SPECIES:

1. SO'RBUS *Aucupa'ria*: The WILD SORB, or MOUNTAIN ASH, or QUICKBEAM, or QUICKEN TREE, or ROAN TREE; *a low deciduous tree;* native of England and most of the Northern parts of Europe.

2. SO'RBUS *Dome'stica*: The CULTIVATED SORB, or SWEET SERVICE; *a low deciduous tree;* native of the South of Europe.

3. SO'RBUS *Hy'brida*: The MONGREL SORB, or SEMI-PINNATED SERVICE; *a low deciduous tree;* native of Gottlandia.

1. The WILD SORB, or MOUNTAIN ASH. Although we generally see this species in a shrubby underwood state, it will nevertheless, if properly trained, grow to a tree of the middle size. It has no claim to the appellation of Mountain Ash, except some distant resemblance of the common Ash in the formation of its leaves. The flowers of this tree have a pleasing effect in the spring, and its berries, in autumn and winter, render it highly *ornamental*. EVELYN enumerates its *uses*: he says, "besides the use of it for the husbandman's tools, goads, &c. the wheelwright commends it for being all heart. If the tree be large, and so well grown as some there are, it will saw out into planks, boards, and timber. Our fletchers commend it for bows next to Yew, which we ought not to pass over, for the glory of our once English ancestors: In a statute of Henry VIII. you have it mentioned. It is excellent fuel; but I have not yet observed any other use." HANBURY follows him, and places the Mountain Ash among his Forest Trees. Its wood is undoubtedly pliable and tough. Its shoots, from the stool, are generally numerous, straight, and long. In the North of England the husbandmen use them for

whip-stocks to drive their teams with. For stakes, edders, and perhaps for hoops, no wood is better adapted than the Wild Sorb; and as an UNDERWOOD it seems well worth the planter's notice. It braves the bleakest situation and aspect; but cannot bear much wet: it is truly a Mountain plant.

The PROPAGATION of the NATIVE SORB is from seeds or by layering. Having procured a sufficient quantity of berries, they should be sowed, soon after they are ripe, in the seminary, about half an inch deep. They frequently lie till the second spring before they make their appearance; and, in the spring following, may be planted out in the nursery. We need not repeat that the seminary should be kept clear of weeds, and that the young plants in dry weather now and then ought to be refreshed with water; neither need the Gardener be reminded, that after they are planted in the nursery way, digging the ground in the rows must be observed every winter, taking off all shoots also which would make the tree forked, and keeping the weeds hoed in the rows, till they are of sufficient size to plant out where they are intended to remain.

This species will take very well from *layers*: so that whoever cannot procure the berries, and has a few of these trees, may cut them down close to the ground, when they will throw out many stools; and if the year following these are laid in the ground in the same manner as carnations, they will have taken good root in one year. But trees cultivated this way, will not grow so straight and handsome, neither will they arrive at so great a magnitude as those raised from the seeds.

The Quicken Tree will grow upon almost any soil, either strong or light, moist or dry. It flourishes both on the mountains and in the woods; it is never affected by the severity of the weather, being extremely hardy; and if even planted on bleak and exposed places, it grows exceedingly well.

2. The CULTIVATED SORB, or SWEET SERVICE, is so distinguished from the other, because it produces eatable fruit, which in France, Italy, and other parts, is served up in desserts; and the tree is cultivated there

solely on that account. It will grow to be larger than the Mountain Sorb, and in many respects is superior in beauty to most trees. It will grow with an upright stem; and the young shoots in the summer are so downy as to appear covered with meal. In the winter they are inclined to a purplish colour, and are spotted all over with whitish spots; the buds at the ends of them will be turgid, preparing for the next year's shoot. The leaves resemble those of the Mountain Sorb; they are finely pinnated, and composed of seven or eight pair of lobes, which are terminated by an odd one. They are broader than those of the Quicken Tree, serrated in a deeper and more irregular manner, and their under surface is of a much more downy nature. The flowers are white, grow in umbels, come out in May, and are succeeded by an agreeable fruit, which is large, fleshy, and of various shapes in the different varieties.

3. The MONGREL SORB. This seems to be a mongrel, between the Quicken Tree and *Aria*. It is an upright growing tree, and the young branches are of a whitish colour. The leaves are very downy, and pinnated at the base; but the upper lobes join together, thereby forming a half-pinnated leaf. The flowers are white, grow in umbels, and are succeeded by bunches of roundish berries, which will be ripe in the autumn.

The PROPAGATION of the Native Sorb has already been given; and that culture will serve for all the sorts; but in order to have good fruit of the Sweet Service Tree, the best sorts should be grafted or budded upon pear or quince stocks.

These trees are very hardy, for they will grow in almost any soil: though they make the swiftest progress, and arrive at the greatest height, in a moist situation.

SPARTIUM.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being divided into two sets at the base. There are sixteen SPECIES; seven of which are proper for our Collection:

1. SPA'RTIUM *Scopa'rium:* The COMMON ENGLISH BROOM; *a deciduous shrub;* native of England, and the Southern parts of Europe.

2. SPA'RTIUM *Ju'nceum:* The SPANISH BROOM; *a tall deciduous shrub;* native of Spain, Portugal, and some parts of Italy and Sicily.

3. SPA'RTIUM *Radia'tum:* The STARRY BROOM; *a low deciduous shrub;* native of Italy.

4. SPA'RTIUM *Monospe'rmum:* The SINGLE-SEEDED BROOM; *a deciduous shrub;* native of the barren parts of Spain.

5. SPA'RTIUM *Angula'tum:* The EASTERN BROOM; *a deciduous shrub;* native of the East.

6. SPA'RTIUM *Spino'sum:* The THORNY BROOM, or PRICKLY CYTISUS; *a tender deciduous shrub;* native of the sea-coasts of the Southern parts of Europe.

7. SPA'RTIUM *Sco'rpius:* The PRICKLY BROOM; *a deciduous shrub;* native of Spain and the South of France*.

1. The ENGLISH BROOM will grow to be about six feet high. The branches are very flexible and numerous; they are angular; and the bark with which they are covered is of a delightful green. The leaves are both trifoliate and single, the lower part of the branches producing the former, the upper part the latter. The flowers are large, and produced in May, all along the sides of the last year's shoots, from the bottom to the top. They stand upon short footstalks, and so ornament each twig of which the whole shrub is composed, that they have a look grand beyond most of those

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* For another Class of Brooms see GENISTA.

of the flowery tribe. These flowers are succeeded by compressed pods, containing kidney-shaped seeds, all of which are very well known.

2. SPANISH BROOM. There are two notable *Varieties* of this species: Common Spanish Broom, Double Spanish Broom.

Common Spanish Broom is a fine plant, and has been much sought after as a flowering shrub. It will grow to be ten feet high. The branches are taper, placed opposite, and covered with a smooth green bark. The leaves, which are not very numerous, are of a spear-shaped figure, and, like the twigs, of a fine green colour. The flowers are produced at the ends of the branches, in loose spikes, in July; and there will be a succession still kept up, at the end of each spike, often until the frost puts a period to their blowing. The flowers of this sort, also, are succeeded by compressed pods, which contain kidney-shaped seeds, that often ripen in the autumn.

The *Double Spanish Broom* differs in no respect from the other, expect that the leaves are very double. The manner of growing, colour of the shoot, and nature of the leaves, are exactly the same; and it produces very full double flowers; but these flowers do not come out so early as the single sort, it being often September before any of them will be in blow; and the succession will be continued so slowly, that sometimes not more than two or three flowers on a spike will be fully out before the frosts nip them from any further blow. This sort is succeeded by no seeds.

3. STARRY BROOM is a low plant, seldom growing more than a yard high, even when it has the advantage of culture; in the places of its natural growth, two feet it seldom aspires to. Nothwithstanding the low growth of this shrub, however, it will occupy a large space of ground in proportion to its size, for it extends its flexible branches all around to some distance. The branches of which it is composed are very narrow, angular, and grow opposite by pairs. The leaves are trifoliate, grow opposite to each other, and the folioles are awl-shaped, placed opposite, and spread out in such a manner as to resemble the rays of a star, which occasions its being so called. The flowers are produced

in June and July, at the ends of the branches: they will be in a kind of small clusters or spikes, are of a bright yellow colour, and of the same figure with the former, but proportionally smaller. They are succeeded by short hairy pods, in which are a few kidney-shaped seeds, which will be ripe in August or September.

4. SINGLE-SEEDED BROOM. The *Varieties* of this species are, the Common Yellow, and the White-flowered.

The *Common Single-seeded Broom* is a plant about six feet in growth. Its branches, which are very numerous and tough, are angular; and the leaves, which are not very many, are of a lanceolated figure. The flowers are produced in bunches from the sides of the branches. These bunches are small; but being of a fine deep yellow colour, and also being in plenty all over the shrub, give it a beautiful look. This shrub blows in July; and the flowers are succeeded by short pods, each of which contains a single seed only, which seldom ripens in England.

White-flowered Single-seeded Broom, which is also called *The White Spanish Broom*, is of a more tender nature than the former sort; yet not so tender but that it will thrive abroad with us, in any dry soil and well sheltered situation, if the winters are not too severe. After this precaution, we would advise the Gardener not to venture his whole stock of these plants abroad, lest a severe winter should take them all off; but to have a few planted in pots, and set under shelter, that, in case the others should be killed, a share of these may supply their places. The White Spanish Broom, then, will grow to about eight feet high; and the branches are numerous, slender, and tough. Their bark is of a whitish colour, and they are taper, almost like a rush. The leaves, which are not many, are of a lanceolated figure. The flowers are white, come out in clusters from the sides of the branches in July, and are succeeded by short pods, each of which contains one single seed only.

5. The EASTERN BROOM will grow to about six or eight feet high. The branches of this, also, are numerous, slender, and tough. They are rather of a singular structure, each of them affording six angles,

The leaves, which are few, are of different figures, some being found single only, whilst others are trifoliate. The flowers are produced in July, at the ends of the branches, in a kind of spikes. They are of a paler yellow than most of the other sorts, and are rarely succeeded by seeds with us.

6. PRICKLY CYTISUS, or THORNY BROOM, has scarcely any business in this place, being generally reared as a greenhouse plant; but as it will bear our moderately mild winters in a warm soil and situation, with this caution it may be introduced. It is about six feet in growth; and the branches are numerous, slender, tough, angular, and armed with long spines. The leaves are trifoliate; and the flowers are produced in clusters, in June, at the ends of the branches. They stand on long footstalks, are of a bright yellow, and make a good figure. They are succeeded by short hard pods, which contain a few seeds of the same figure with the others.

7. PRICKLY BROOM. The stalk of this species is woody, and sends forth several slender, prickly branches, which spread themselves every way. The leaves are oval, smooth, and in some Varieties hairy. The flowers are moderately large; and some are of a deep yellow colour, whilst others are pale. They appear in July; and are succeeded by short pods, containing the seeds, which seldom ripen in England.

All these sorts of Broom, the Double-blossomed excepted, are to be PROPAGATED from seeds; and one method may be observed for all the sorts. The sorts that ripen their seeds in England are supposed to be ready at hand; the seeds of the others must be procured from the places where they grow naturally. The first week in April is the best time for sowing the seeds; and this should be either in drills, or on beds, half an inch deep. It will not be long before the plants appear; and as the hot weather comes on, they should be shaded from nine o'clock in the morning till within an hour of sunset. Watering and constant weeding must be given them; and this is all the trouble they will require in summer. The reader will percieve our Common Broom to want none of this care; neither will the Common Spanish Broom need much of it; it is to be afforded those only which are less common, that we may be more certain of a plentiful strong crop. In the spring all these seedlings are to be taken up, and pricked out in the nursery ground, a foot asunder, and two feet distant in the rows. This work must be done when they are one-year-old seedlings; because they naturally send down a strong tap root, which, if deferred longer, will be grown so big as to endanger the growth of the plant. After they have stood in the nursery ground two years, they will be good plants for setting out where they are to remain. Thus may all the sorts of *Spartium* be raised by seeds; though it will be highly proper to have particular regard to the situation of the tenderer sorts; such as the White Spanish Broom, the Oriental, and the sorts called the Prickly *Cytisus* and Prickly Broom. These may be raised the same way; but the soil and situation must be naturally warm and well sheltered, and the beds should be hooped to be covered with mats in frosty weather, otherwise the whole crop will be in danger of being lost the first winter. In the spring they may be planted, some in pots (to preserve the sorts), others, in the warmest places of the shrubery. Another method will not be improper to be followed in raising the tenderer sorts; namely, by sowing them in pots in April, and plunging them in a shady border up to the rim. At the approach of the first frost, they may be removed into the greenhouse, or placed under some shelter, when they will be effectually preserved until the spring; then they should be turned out, and planted in separate pots, which should be plunged in a shady border, and removed under cover in the winter. By thus protecting them for a winter or two, they will get stronger, and be able to resist the cold; and then a share may be planted out in the warmest situation, whilst, the others may be removed into larger pots, to be kept, if wanted, as greenhouse plants.

SPIRÆA.

Linnean Class and Order, *Icosandria Pentagynia*: Each flower contains about twenty males and five females. There are nineteen Species; six of the ligneous kind are here treated of:

1. Spiræ'a *Salicifo'lia*: The Common Spiræa Frutex, or the Willow-leaved Spiræa; *a low deciduous shrub or herb;* native of Siberia and Tartary.

2. Spiræ'a *Tomento'sa*: The Red-flowering Spiræa; *a low deciduous shrub;* native of Philadelphia.

3. Spiræ'a *Hypericifo'lia*: The Hype'ricum-leaved Spiræa, or Hypericum Frutex; *a deciduous shrub;* native of Canada.

4. Spiræ'a *Crena'ta*: The Spanish Spiræa; *a low deciduous shrub;* native of Spain and Siberia.

5. Spiræ'a *Opulifo'lia*: The Gelder-rose Spiræa; *a deciduous shrub;* native of Virginia, Canada, and Carolina.

6. Spiræ'a *Sorbifo'lia*: The Service-leaved Spiræa; *a low deciduous shrub;* native of moist land in Siberia.

1. The Common Spiræa Frutex rises to about four feet high. The root is spreading; so that besides the common stalks which send forth branches, others are produced from the roots called Suckers, which by the autumn will be as high or higher than any of the whole plant. The bark on all these is smooth, and of different colours; that on the old stalks is red, though for the most part clouded with a dusky matter: The young shoots that grow from these stalks are lighter, though nevertheless of a reddish tinge; whilst the bark on the summer shoots, that sprung from the root, are nearly white. The leaves of this species are of a fine green, and grow without order on the branches. They are spear-shaped, obtuse, naked, and their edges are serrated. The flowers are produced in June, at the ends of the branches that grow from the main stalk; and before these have done blowing, the suckers that

are twigs; for every twig at a little distance will look like a long narrow spike of flowers; and these being all over the shrub, of a pure white, the show they then make is delightful. It sickens in a wet situation.

4. **Spanish Spirea** will grow to be about four feet high; and the branches, which are produced irregularly, are covered with a dark brown bark. The leaves are small, of a pleasant green colour, and serrated at their ends. The flowers are produced from the sides of the branches, in May; they grow in roundish bunches, are of a whiter colour than, and being produced nearly the whole length of, the branches, make a charming show, like the preceding sort; from which this appears very little to differ, without being strictly examined.

5. **Gelder-rose Spirea.** Of this species there are two *Varieties*, called, Virginian Gelder-rose, and Carolina Gelder-rose.

Virginian Gelder-rose will grow to be seven or eight feet high. The branches are covered with a dark brown bark, which peels off in the winter, and discovers an inner, which is smooth, and of a lighter colour; so that in winter this shrub has a very ragged look. The leaves resemble those of the common currant bush, which has occasioned its being called by some the Currant-leaved Gelder-rose. They are for the most part lobed like them; though all the leaves will not be alike, some being divided into more than three lobes, whilst others are scarcely divided at all. They are serrated at their edges, are of a palish green colour, and placed irregularly on the branches, on long green footstalks. The flowers are produced in June, at the ends of the branches: they are white at their first opening, and afterwards receive a reddish tinge, which is still heightened before they die off. Each flower separately is rather small; but many of them grow together, each having its separate footstalks, in large umbels. The beauty of the Common Hawthorn is known to all; and it may not be amiss here, as the simile is just, and that the Reader may have a true idea of the flowers, to mention, that each flower separately has the appearance of a single flower of the Hawthorn, and that they are produced in bunches. These flowers are succeeded by the same kind of bunches of reddish, cornered fruit, which causes a pretty variety in the autumn.

Carolina Gelder-rose differs very little from the former sort. The branches are covered with the same kind of falling bark; though the leaves are not lobated in the same manner; for these will be of different shapes; yet most of them are nearly oval, but end in points, and are all unequally serrated round their edges. The flowers of this sort, also, are white, but grow in rounder and smaller bunches than the other. They are succeeded by the like kind of cornered fruit, which is of a reddish colour in the autumn.

6. **SERVICE-LEAVED SPIREA** is a shrub of very low growth; a yard is the highest we ever yet knew it arrive to. The young branches are covered with a purplish bark. The leaves are beautifully pinnated, so as nearly to resemble those of the Service Tree. The folioles are oblong, and generally about four pair in number: they are uniformly serrated, and exceedingly ornamental to the shrub. The flowers are white, and produced at the ends of the branches, in July, in panicles. They are seldom succeeded by seeds in England.

The **PROPAGATION** of all the sorts is very easy. It may be done by cuttings; for if the strongest parts of the shoots of the last summer's growth be planted in October, in a shady border, most of them will grow, and become good plants by the autumn; so that by the autumn after that, they will be very proper plants to be set out to stand. But if a person has only a plant or two of a sort, from which he can get but a very few cuttings, the best way is to layer them, and not hazard their growing this way; for although they will take freely, yet (says HANBURY) by some unseasonable weather, I have known whole crops of *cuttings of all sorts* to fail. Thus, of the many thousand cuttings of all sorts I planted in the winter preceding the dry summer in 1762, very few grew; for although they were shaded and watered, and others planted in shady borders, yet, such large cracks and chasms would open among them (as they did almost all over my plantations) as to cause watering to be of no service; nay, the more I watered them, the harder the mould set, and the chasms became greater; and notwithstanding many of the cuttings were planted in parts that were possessed of a natural moisture, yet the crevices there were larger, and the ground harder; and all attempts to prevent it seemed to be in vain. Though this is the nature of the soil of few nurseries, I mention this to shew, that there is a hazard in planting of cuttings, unless the season should prove good; for this turn I had scarcely any grew: so that whatever trees will grow by cuttings, if a Gentleman has only a plant or two, and wants to have them encreased, the best way is to do it by layers; and hence, of all *the sorts before mentioned*, if the twigs be but laid in the ground in the autumn, they will have good roots by the autumn following, many of which will be plants strong enough to be planted in the shrubery, whilst the weaker may be set in the nursery ground for a year or two, to gain strength. Some of these sorts will throw out suckers, which will be good plants when taken up: nay, the first sort will propagate itself fast enough this way; for after it has stood a year or two it will throw them out so vigorously, as has been before observed, that in one summer they will grow to be as high as the whole plant, and will have fair flowers at their ends in the autumn. And here the Gardener must observe, that after this sort is planted in the shrubery, the suckers must be constantly cleared off the old plants every winter, otherwise they will soon be so numerous and close, as to lose that beauty which always attends plants that arise with single or with few stems.

STAPHYLEA.

Linnean Class and Order, *Pentandria Trigynia*: Each flower contains five males and three females. There are two Species:

1. Staphyle'a *Pinna'ta*: The Common Staphylea, or Bladder Nut; *a deciduous shrub*; native of many parts of Europe.

open in the spring; which has been known to be sometimes so early as January; though the flowers will not be in full blow until May. These flowers, like the former, are produced from the sides of the branches, in long pendulous bunches: their colour is white; and they are succeeded by large inflated bladders, in which the seeds are contained. The seeds of both species ripen well in England.

These species may be **PROPAGATED** by seeds, layers, or cuttings. 1. The seeds should be sown, soon after they are ripe, in the autumn, three quarters of an inch deep, in almost any sort of common garden mould made fine. In the spring some share of the plants will appear; though you must not expect the whole crop until the second spring following: nay, if the sowing of the seeds is deferred until the spring, scarcely any of them will come up until the spring after. All the summer the beds must be kept clear of weeds; and if it should prove dry, a gentle watering should be given the young plants, which will encrease their growth. The spring after the remainder of the crop will come up; and the business of weeding must be continued that summer. In the autumn the two-years-old plants should be drawn out and planted in the nursery, a foot asunder, and two feet distant in the rows; and in the beginning of March the one-year-old seedlings should be taken up, and planted in the same manner. The reason of deferring the planting out of the younger seedlings, is, that, being small when planted out in autumn, they are often thrown out of the ground by the frost, and many of them lost; whereas of larger plants there will be little danger. After they have stood two or three years in the nursery, they will be good plants for any places where they are wanted. 2. These shrubs may also be propagated by layers; and this must be performed in the autumn, on the shoots of the preceding summer, by slitting them at a joint, and laying them in the ground. The making of this slit will be necessary, or at least the well breaking of the bark, otherwise they will not strike root; and if this be done with judgment, they will have good roots by the autumn following, many of which will be good plants, and fit for the shrubery; whilst the weaker may be planted in

Right Hon. the Earl of Bute, as a compliment to his great skill in the science of botany.

This plant is PROPAGATED by layers and seeds. 1. The young shoots should be layered in autumn, by making a slit at the joint, as is practised for Carnations. In the spring, a tall hedge of some kind should be made on the south side of them, bending also a little towards the east and west, that they may be shaded all the summer. In dry weather they should be watered; and then they should remain until the March following, when they should be examined to see if they have struck root; for sometimes they will strike root pretty freely, if so shaded and watered; and sometimes they have disappointed our expectations after waiting two years; though cuttings will sometimes grow. In March, however, a sufficient quantity of pots must be provided, filled with good garden mould, mixed with a share of drift sand; and the layers should be taken up, whether they have struck root or not, and planted in these pots, which must be plunged up to their rims in a bark bed. Those layers that have no roots will have the parts ready for striking, and this assistance will set them all forward; so that in a very little time they will become good plants. They must be hardened as soon as possible to the open air. For this purpose the pots should be taken out of the beds, and plunged up to the rims in a shady place; and though these are hardy trees, it will be proper to take the pots up, and remove them into the greenhouse, or under some shelter, for the first winter. At the latter end of March they may be turned out of the pots, with their mould, into the places where they are wanted to stand. 2. Another method of propagating these plants is from seeds, which we receive from abroad. These should be sown in pots of light earth, about half an inch deep, and the pots should be plunged up to the rims in a bark bed; where all the advantages of heat, water, and shade, must be afforded them; for without these requisites, it is not often that they will grow.

from abroad. These must be sown an inch deep, in pots of light sandy earth, which pots should be plunged in a shady well sheltered place, there to remain until the second spring after sowing. In March the seeds will be ready to sprout; and to assist them, it will be necessary to take up the pots, and set them up to the rims in a hotbed. When the plants come up, all convenient air must be given them; often water; and they should be hardened soon to the open air. They should be then set abroad in the shade, and in the winter should be removed into the greenhouse, and placed under shelter. In the spring it will not be necessary to force them a second time in the hotbed; for if the pots are set in a shady place up to the rims, and now and then a little watering afforded them, the plants will grow very well, and make good shoots that summer. Like greenhouse plants, at the approach of winter, they must be removed into shelter; and in spring they must be shook out of these larger pots, and each planted in a separate smaller pot; and being well watered, if they are plunged into a hotbed, it will set them growing finely. After they have had help this way they must be soon hardened, and the pots taken up, and set up to the rims in mould in a shady place. In winter they should be placed in the greenhouse as before; and this method must be continued for six or eight years, treating them exactly as hardy greenhouse plants, and shifting them into fresh pots, as their encrease of size by growth requires. By this time they will be woody and strong; and may then, the beginning of April, be turned out of the pots, with the mould, into the places where they are designed to remain. If the soil be naturally dry and warm, and the place well sheltered, nothing but very severe frosts will injure them, especially after having stood a winter or two.

SYRINGA.

LINNEAN Class and Order, *Diandria Monogynia*: Each flower contains two males and one female. There are only two SPECIES:

1. SYRI'NGA *Vulga'ris*: The COMMON LILAC; *a tall deciduous shrub;* native of Egypt.

2. SYRI'NGA *Pe'rsica*: The PERSIAN LILAC; *a deciduous shrub;* native of Persia.

1. The COMMON or EGYPTIAN LILAC. The *Varieties* of this Species are,

The Purple Lilac,
The Blue Lilac,
The White Lilac.

The *Purple Lilac* generally rises to the highest size of any of the three sorts, though the height of all of them is either greater or less, according to the soil in which they are planted. The Purple, in good light, rich earth, will grow to be sixteen or twenty feet high; and the others, in the same sort of mould, nearly as high. The purple Lilac is naturally of an upright growth, though it soon divides into branches; and these also, as the tree grows older, into others, all of which are covered with a smooth brownish bark. All winter the plant has a bold and healthy look, occasioned by the large and turgid purplish buds, which will have begun to swell early the preceding summer, and which will burst forth into leaf soon in the spring following. The leaves are large and smooth, and of a pleasant dark green colour. They are of an oval, cordated figure, end in acute points, and grow opposite by pairs on the branches. The flowers will be produced in May, at the end of the same spring's shoot, in very large and almost conical bunches. They are of a purplish colour, are closely placed, and the number of which each bunch is composed is very great. "I have measured a bunch of them, says HANBURY, a foot long; and can any thing be thought to excel such a profusion of flowers, in its aggregate state, of which each cluster is composed! But many of these flowers appear all over the tree, mixed in an easy manner among the delightful leaves some peeping as it were above them, and several reclining their tops, to make the appearance still more free and easy. The value of these flowers is still heightened by their delightful fragrance; and when their blow is over, which it will be in a fortnight or three weeks, they have paid us their tribute, except what they afford from their leaves and manner of growth; for they are succeeded by seed vessels, of such a colour and nature as none but the curious botanist can find any pleasure in observing."

The *Blue Lilac* differs in no respect from the Purple, except that the branches are rather more slender and less erect, and that it seldom rises higher than twelve or fourteen feet. The branches are covered with a smooth brownish bark; and the buds in the winter will be turgid like the former, though smaller; and they, as well as the young shoots, will have a blueish tinge. The leaves are exactly like the preceding sort, though they will have a cast of blue. The flowers are produced in May, in not quite such large bunches as the former sort; the bunches will be also loose. They are of a fine blue colour, and admirably scented; and the preference is to be given with justice to neither of these trees.

The *White Lilac* seems rather a stiffer plant than the Blue, and the branches grow more erect than any of the sorts. The young branches are covered with a smooth light coloured bark; and in winter the buds, which will be large and turgid, are of a herbaceous yellow colour, by which this sort at that season may be easily distinguished from the others. The leaves are of the same figure and nature, though their colour is lighter, thereby making a variety. The flowers are of a fine white colour; and are produced in the same kind of large close panicles as the others, which stand upright. They are very fair, and, in the bunches, are set very closely together, which causes them to be more erect than either of the two former sorts. Thus may any person who has never seen these trees, form an idea of their beauty when in blow; which will be very early, *Blue Persian Lilac* differs from the preceding, in that the flowers are of a deep blue colour, thereby causing a pleasing variety on that account.

Cut-leaved Persian Lilac affords the greatest variety by its leaves; though the bark is rather darker, and the twigs seem slenderer, and are still more pendulous than the other sorts. The leaves of this sort are divided, almost to the midrib, into an uncertain number of segments; and as this occasions them to have a different, an unfrequent, and a singular look, the value of the plant is much heightened on their account; particularly as it is in no respect diminished in the elegance and fragrance of its flowers.

The best way of PROPAGATING all these sorts is by layers; for if this work be performed in autumn, on the young shoots, they will be good plants by the autumn following. This method is particularly to be preferred in the first three sorts of Lilacs, as they naturally throw out such plenty of suckers as to weaken, unless constantly taken off, and diminish the beauty of the mother plants. Plants raised by layering will be less liable to throw out suckers, and consequently will be more valuable. The common way, indeed, is to take up the suckers, and plant them in the nursery for a year or two, and then set them out finally; but these plants will not be so valuable as the others, as they will be more liable to produce suckers, which to the Gardener, when he has got a sufficient stock of plants, become very troublesome.

The Persian sorts being less liable to put up suckers, may not only be encreased by layers; but when they do throw out any, the suckers may be taken up, and deemed good plants. Cuttings of these sorts, also, planted in August, in a shady moist place, will often grow.

The Persian Lilacs never produce seeds with us, but the first three sorts do; and by these the plants may be encreased; which also is a good method. The seeds ripen in the autumn; and in October they should be sown. They are rather small; and therefore the mould of the beds should be very fine, and they should be covered over lightly. In the spring they will come up, and will want no other care than weeding. In the spring following they may be planted in the nursery, a foot asunder, and two feet distant in the rows; and here they may stand two or three years, when they will be of a proper size to be finally planted out, and will flower in a year or two after. The differences of all these three sorts are generally permanent from seeds; so that a person may sow them with reasonable hopes of obtaining the sorts the seeds were gathered from.

TAMARIX.

Linnean Class and Order, *Pentandria Trigynia*; Each flower contains five males and three females. There are only two Species:

1. Ta'marix *Ga'llica:* The French Tamarisk; *a tall deciduous shrub;* native of France, Italy, and Spain.

2. Ta'marix *Germa'nica:* The German Tamarisk; *a deciduous shrub;* native of low overflowed places in Germany.

1. The French Tamarisk will grow to the height of about fourteen feet. The branches are few, and spread abroad in an irregular manner, some being upright, others horizontal, whilst others decline with their ends towards the earth. The bark is smooth, and of a deep red or purplish colour next the sun; but on the opposite side of the branch of a pale brown. The leaves are rather of a pale green, and very beautiful. They are very narrow; and upon examining them we find them scaly in a fine degree. The flowers will be produced in plenty at the ends of the branches: They grow in seemingly very large loose panicles; but on examining them, we find that each is composed of numerous compleat flowers, which grow in spikes, and are produced near the extremities of the branches on the slender twigs all around. Each of these spikes separately is but small; and they are of a pale red colour. The flowers of each spike are

exceedingly small; and the number of stamina is five, which differs from the other species by only having half the number. This sort flowers in July, and we have known it in full blow in September, and sometimes in October, and even November, when the weather has been all along mild. Nothing ornamental succeeds the blow.

2. The German Tamarisk is of lower growth, seldom aspiring higher than eight or ten feet. It is a more regular tree than the former, as the branches all naturally grow in an upright position. They are very brittle, are scented, and covered with a smooth yellowish bark. The leaves have a scaly appearance, and stand much closer together than those of the other sort: They are of an exceedingly light green colour, and very ornamental. The flowers are produced in July, at the ends of the branches, in long loose spikes. Each separate flower is small, though much larger than the other sort, and is possessed of ten stamina, which are alternately shorter. These spikes attract the attention when in blow, and are acknowledged by all to have a fine look; neither is the noble appearance lost when the flowers are faded; but it is continued in the spikes even until the seeds are ripe, which then seem to dissolve into a shattered down and scales.

The propagation of these sorts is very easy: Every cutting will grow that is set in winter, and will be a good plant by the autumn following. The encreasing of these sorts by layers has been recommended; but this is bad advice, not only as being unnecessary trouble, when they will grow so freely by cuttings, but because layers of this tree very often will not strike root at all. We have layered them, and found them, after lying two years, without any roots; and the wound being grown up, differed from the other branches only in that the mould had a little altered the colour of the bark; which should warn all persons who want a stock of these plants to beware of layering: and this, no doubt, they will do when we assure them the cuttings will strike root as freely as those of the Common Willow. The best time for the work is October, though any time of the winter will do. The cuttings should be of the last summer's shoot; and a moist part of the garden is most eligible for them to be planted in. In two years they will be good plants for the wilderness or shrubery, and may then be planted out in almost any soil, though they best like a light moist earth, especially the German sort; as in other countries, where it grows naturally, it is generally found in low watery grounds.

TAMUS.

LINNEAN Class and Order, *Dioecia Hexandria:* Male flowers containing six parts, and female flowers containing one part; upon distinct plants. There are only two SPECIES:

1. TA'MUS *Commu'nis:* The COMMON BLACK BRIONY; *a climber;* native of England, South of Europe, and the East.

2. TA'MUS *Cre'tica:* The CRETAN BLACK BRIONY; *a climber;* native of Crete.

1. The COMMON BLACK BRIONY. This has a very thick fleshy root, full of a viscous juice, blackish without, white within, and from which issue numerous slender twining stalks, which wind about themselves, or any thing that is near them, and will mount, if supported, about twelve feet high. The leaves are heart-shaped, smooth, undivided, of a shining green colour, and grow alternately on the stalks. The flowers come out from the sides of the stalks in long bunches. They are small, of a whitish colour, appear in June and July, and the females are succeeded by round red berries, which ripen in the autumn.

There is a *Variety* of this with brown, and another with black berries.

2. CRETAN BLACK BRIONY. This has a large, fleshy root, from which issue many slender twining branches, which, if supported, will rise to about the height of the former. The leaves are trifid, or divided into three lobes. They are of a good green colour, smooth,

and grow alternately on the branches. The flowers come out in bunches, from the sides of the branches. They appear about the same time as the former; and are succeeded by the like kind of red berries.

The PROPAGATION of both these sorts is very easy: It is effected by parting the roots, or sowing the seeds. 1. The best time of parting the roots is early in the autumn, that they may be established in their new situation before the frosts come on. 2. The seeds also should be sown in the autumn, soon after they are ripe, otherwise they will often lie until the second spring before they make their appearance. A very few of these plants in the shrubery quarters will be sufficient. The best way is to well dig the ground under the trees or bushes where you choose they should grow; then put five or six berries in a place, covering them over about half an inch depth of mould. They will readily come up, will twist about the trees, and shew themselves to greater advantage than when directed by art in their course.

TAXUS.

LINNEAN Class and Order, *Dioecia Monadelphia*: Male flowers containing many stamina joined in one set at the base, and female flowers containing one pistillum; upon distinct plants. There are two SPECIES:

TA'XUS *Nuci'fera*: and

TA'XUS *Bacca'ta*: THE YEW; *an evergreen tree;* said to be a native of Britain, and most parts of Europe. It grows also in Canada.

The YEW will grow to a great size. EVELYN mentions some very large ones in his time; and Mr. PENNANT, in a Tour in Scotland, took notice of a Yew in Fotheringall church-yard, the ruins of which girted fifty-six feet and a half. The leaves of this tree form perfect feathers; the young leaflets are of a pale yellowish hue; but the old leaves are of a darker green. Having been accustomed to see this tree, either as a subject of torture or a companion of the dead, and generally in an old declining and frequently diseased state, we are either wholly unacquainted with its natural beauties, or overlook them. If, however, the Yew, standing singly, be suffered to form its own head, it becomes *ornamental* in a superior degree; it throws out its lower branches to a great extent; and, shooting upwards, takes a strikingly conical outline; putting on a loose airy appearance. The timber of the Yew is tough and durable. **EVELYN** enumerates its *uses*: "Besides the uses of the wood for bows (for which the close and more deeply dyed is best) the artists in box, cabinet makers, and inlayers, most gladly employ it; and in Germany they use to wainscot their stoves with boards of this material: also for the cogs of mills, posts to be set in moist grounds, and everlasting axle-trees, there is none to be compared with it: likewise for the bodies of lutes, theorboes, bowls, wheels, and pins for pulleys; yea, and for tankards to drink out of." He mentions whole woods of these trees divers miles in circuit, growing in the neighbourhood of Box Hill, in Surrey. These woods, or rather, we apprehend, *plantations*, have lately been taken down (a few standards excepted); and the timber of such trees as were sound were sold to the cabinet makers at very high prices, for inlaying: one tree in particular was valued at a hundred pounds, and half of it was actually sold for fifty. The least valuable were cut up into gate posts; which are expected to last for ages: even stakes made from the tops of Yew have been known to stand for a number of years. We do not mention these circumstances as an inducement for making plantations of Yew, so much as hints to those who may have Yew Trees in their possession. Indeed, ornamental and useful as the Yew Tree undoubtedly is, there is one great objection to planting it: we mean its poisonous effects upon cattle. It is observable, however, that in the extensive Yew plantations abovementioned, cattle were admitted with impunity, and still range amongst the stragglers that are left, without any evil consequence. They are browsed to the very bole: sheep are particularly fond of the leaves, and, when the ground is covered with snow, will stand upon their hind legs, and devour them as high as they can reach. HANBURY, speaking of this matter, says, "It has been thought dangerous to turn cattle into fields where Yew Trees grow; but I believe no beasts will touch them, unless compelled by extreme hunger. It is true, several have lost both horses and cows by their eating the leaves of this tree; but this accident must be attributed either to the abovementioned cause, or to the Gardener having thrown the clippings carelessly in places where cattle come; which, particularly cows, will eat them, when half dry, as greedily as new hay. By such an accident, viz. a Gardener's having thrown the clippings of a Yew Tree over the wall, a neighbouring farmer of mine lost seven or eight of his best cattle; which ought to be a caution to all Gardeners, whenever these trees are cut, to be careful that the clippings be either carried in for the fire or buried."

The PROPAGATION of this tree is from seeds. In autumn when the seeds are ripe, a sufficient quantity should be gathered; and being first cleared of their mucilage, let them be sown neatly, in beds about half an inch deep. By being thus expeditious in planting them, many will come up the next spring; whereas, if the seeds are kept out of the ground till February, the plants will not appear until the spring after. During the summer the beds must be kept clean from weeds; and if the weather should prove very dry, now and then watered. This will promote the growth of the hidden seeds, and at the spring may be expected a general crop. The plants being come up, no other care will be necessary, for two years, than keeping the beds weeded, and refreshing them in dry weather with gentle watering. After they have gained strength in these beds by standing two years, a piece of ground must be prepared for them, in which they should be planted at a foot asunder. Here they may stand for three or four years, and may be then planted where they are designed to remain, or set out in the nursery in rows two feet asunder, and three feet distance in the rows, in order to be trained for hedges, or raised to a good size to be planted out for standards.

There are two *Varieties*: one with very *short leaves*, and another with *striped leaves*. These are encreased by *layers*, and the striped sort, HANBURY tells us, must be set in a very barren soil, or it will soon become plain.

THUYA.

LINNEAN Class and Order, *Monoecia Monadelphia*: Male flowers containing four parts joined at the base, and female flowers containing one part; upon the same plant. There are four SPECIES: Two of them are as follow:

1. THU'YA *Occidenta'lis*: The COMMON ARBOR VITÆ; *an evergreen tree or shrub*; native of the moist swampy parts of America and Siberia.

2. THU'YA *Orienta'lis*: The CHINESE ARBOR VITÆ; *an evergreen tree or shrub*; native of China.

1. The COMMON ARBOR VITÆ will rise to thirty or forty feet high. The leaves of this tree are peculiarly formed, the leaflets being broad, and, in an advanced state of the tree, thinly scattered; when bruised they emit a strong, and, to most people, very disagreeable scent. In a youthful shrub-like state, the *Thuya* nevertherless gives no unpleasing variety, and may be admitted amongst *ornamentals*. EVELYN and HANBURY arrange it amongst Forest Trees; and in Canada, the Indians, we are told, apply it to many *uses*. HANBURY tells us "the wood is reddish, firm, and resinous; so that we may easily judge of its value for curiosities of most sorts when worked up by the respective artificers of turnery, joiners, cabinet makers, &c." He seems, however, to speak from theory rather than from experience.

The Arbor Vitæ is to be PROPAGATED either from seeds, layers, or cuttings, the former of which produce the best trees, though the two latter methods of propagating are more generally practised. 1. In order to propagate this tree from seeds, these last should be gathered as soon as they are quite ripe, which will be by the beginning of October. They must be sown in pots or boxes of light fine earth, being covered about a quarter of an inch deep. The boxes should immediately after be put in a well sheltered place, so that the seeds in them, whilst they are preparing to disclose, may not be destroyed by violent frosts. Being thus protected till the month of February, they must be brought out, and set along a South wall, that the sun warming the mould may set the powers of vegetation at work; and whenever severe weather is expected, they should be removed into their shelter, but must be brought out again when the fine springing weather returns. With this care, the plants will come up in the spring; whilst, without it, they frequently lie until the second spring before they make their appearance, by which neglect one year is lost. When the young plants are up, and all danger of the frost is ceased, they should be set in the shade where they can have the free air; and in this place they may remain all summer. During that season, little water should be given them; keeping them clean from weeds is the principal trouble they will cause. By the autumn they will have made a poor shoot; for this reason they should continue in their pots or boxes, which must be placed in the same sheltered situation they had at first, where they may remain all winter. In the spring they may be brought out into the sun again, to reap the benefit of his influence at that season; and if they are set in the shade at the beginning of May to remain there all summer, it will forward their growth. The spring following, being then two-years-old seedlings, they should be taken out of the boxes, and planted in beds nine inches asunder. Here they may stand two years, before they are set in the nursery. When they are taken from these beds with this intent, a moist season ought always to be made choice of, and they should be planted a foot and a half asunder, and two feet and a half distance in the rows, where they may stand till they are set out to remain. 2. In order to propagate this tree from layers, the ground should be dug, and made light round about the stools, and the branches laid down so deep as that the top eyes may but just peep above the ground, all being of the young wood. But if it should so happen, that a few of the last year's shoots on the branches should have shot out vigorously, and that there are many healthy twigs which would make good layers, that are not so long; in order to have the greater plenty of layers, and that the shorter shoots may not be buried, it will be proper to shorten the longest, so that, being all laid in the ground, their noses may just appear above the surface. This will be a means of preserving every twig, and consequently of propagating the greater number of plants from the same stool. When these plants are layered, the shoots ought to have a gentle twist or a small nick; for without this they will not always strike root: nay, if the land is strong and heavy, it is great odds but you find them without root, as you laid them, only grown bigger. Thus will one year be lost, which shews the necessity of observing these precautions. Being layered in this manner in the autumn, by the autumn following they will have taken root; and in the spring, when the severe frosts are past, they may be taken from the stools, and planted in the nursery, at the distance directed for the seedlings. 3. In order to propagate these trees from cuttings, young shoots should be taken from the trees in August, if rain has fallen; if not, the business must be deferred till it does; for work of this kind should never be performed till the early autumnal rains have fallen upon the earth, and made it cool and moist. All these cuttings ought to be of the last year's shoot; and if a bit of the old wood be left at the end of each, it will encrease the certainty of success. The situation these cuttings should have, ought to be shady and well sheltered; and the soil in which they are planted, to ensure the greater success, should be a red loam. They may be planted almost as thick as you please; not more, however, than four or five inches asunder, in rows; the rows may be a foot and a half distance from each other; and after they are planted, a little litter may be laid between the rows, to keep the frost out of the ground in winter, and the sun from over-drying them in the summer. This litter will not only keep down the weeds, but will save the trouble of watering, which will be much better for the plants; for these young plants, just striking root, do not much like watering, at least not in great plenty, as it often causes the tender fibres to rot at first striking, and so destroys the young plant. In one year these cuttings will have good roots; so that the litter may be taken away, and the surface of the earth turned over in the spring, which will cherish the plants, and prepare them to shoot vigorously the succeeding summer. In the autumn, being then two years old, they may be taken up, and planted in the nursery, at the distance directed for the seedlings and layers. After they are planted in the nursery, they will require nothing more than the usual care of keeping them clean from weeds, and digging between the rows in winter, till they are planted where they are to remain. This plant bears a very moist situation.

October is the best month for planting out these trees, though any of the winter or spring months will answer. When they are planted, they should be set a yard asunder, and thinned and managed as has been all along directed for others which are nearly of the same growth. The Arbor Vitæ gives great richness to tufts and masses of shrubs: it is full, yet flowing in featherlike tuftlets.

There is a *Variety* of this tree discovered by MR. HANBURY, which he has named The *American Sweet-scented Arbor Vitæ:* this seems to remove a principal objection to the Common sort; namely, the disagreeableness of its smell. He says, "It came up from some scattered seeds at the bottom of a box I had from Pennsylvania. It has the same dusky look in winter as the Common sort, though it is better furnished with branches; neither are they produced so horizontally, or hang down in the manner of the Common sort. What makes this sort most valuable is the property of its leaves; for being bruised, they emit a most refreshing odour, which is by many supposed to be as fine an aromatic as any we have; whereas the leaves of the other sorts being bruised, to most people are fœtid and disagreeable. Whether this property will be continued by seeds, I have not yet experienced."

2. The CHINESE ARBOR VITÆ is a much more beautiful plant than the Common species; for its branches are more numerous, and grow in a more

picturesque erect manner, and the leaves are of a fine pleasant light green colour; whereas those of the other in winter are of a dark disagreeable green, inclined to a dusky brown, which is the worst property of this tree in the winter season. The branches of the Common Arbor Vitæ are of a dark brown colour, and the bark on the young branches is smooth; the bark of the Chinese is also smooth, and of a light brown: The leaves of this sort, like the others, are imbricated, that is, they grow over each other; but they are more numerous and smaller, and grow closer together; and being of so fine a green, which continues all winter, makes this sort the most valuable, though not to the rejection of the others, even in pleasurable plantations; for those cause good variety by their manner of growth, as well as the colour of their leaves. The flowers of none of the sorts have any beauty; they have males and females distinct; and the females of the Common Arbor Vitæ are succeeded by smooth cones, whereas the cones of the Chinese sort are rugged. They are larger than the Common sort, and are of a fine gray colour.

This species, as well as the Sweet-scented sort, may be PROPAGATED by layers and cuttings, as has been directed above for the Common sort.

TILIA.

LINNEAN Class and Order, *Polyandria Monogynia*: Each flower contains many males and one female. There are only two SPECIES:

1. TI'LIA *Europæ'a*: The EUROPEAN LIME, or the LINDEN TREE; *a tall deciduous tree;* native, it is said, of England, and most parts of Europe.

2. TI'LIA *America'na*: The AMERICAN LIME; *a deciduous tree*; native of Virginia and Canada.

1. The EUROPEAN LIME will grow to eighty or ninety feet high, and from twenty to thirty feet in

circumference. The foliage is peculiarly soft and delicate, and its flowers sweet in the extreme. It naturally forms a most perfectly elliptical head; and even in winter its general appearance is rendered pleasing, by the elegance of its long slender twigs. As standards, especially in a rich deep soil, Limes are peculiarly elegible; they are, in such situations, of very quick growth, and except the Oak and the Esculus, few or no trees exceed them in point of *ornament*. The *wood* of the Lime is light, soft, and peculiarly fine grained: it ranks with that of the Sycamore and the Poplar, and may serve upon many occasions as a substitute for the Beech: indeed, in one point of view, it seems to exceed any of those woods, and stands upon its own basis; namely, for the purpose of the carver: we cannot, however, upon the whole, recommend it in general terms to the planter as a timber tree: land, such as this tree requires to render it of quick growth, ought rather to be applied to the more useful purpose of husbandry, or, if convenient or necessary to be planted, should be occupied by the more valuable Oak or Ash; for which necessary woods, a certain and perpetual market may be expected.

The European species affords several *Varieties:* as,

The Narrow-leaved Mountain Lime,
The Broader-leaved Mountain Lime,
The Elm-leaved Lime,
The Green-twigged Lime,
The Red-twigged Lime.

All these are very inconsiderable differences; and though, if nicely observed, they cause some variety, yet that is so small as not to deserve much pains to procure them, except the Red-twigged sort, which of all others is the most beautiful; because, when divested of their leaves, its young branches exhibit their fine smooth red bark all winter, which has a pleasing effect in all places; though in the younger plants this effect will be more striking and delightful, as the bark only is red of the last year's shoots; and the smaller the plants are, the more of these and the less of older wood the composition of the tree will be; whereas, when the trees get older, the twigs will be shorter and less visible; and though still of a red colour, yet not of so delicate a red as the young plants wear on their bark at first. Sometimes these trees will run away from their colour, and grow with green branches; but as this is not common, the Red-twigged sort must be still allowed to be preferable to all others; and the seeds of this must always be sown for the raising of sorts.

The PROPAGATION of the EUROPEAN LIME is from seeds, cuttings, and layers. HANBURY, however, says, "That trees from layers or cuttings never grow so handsome nor so fast as those from seeds. These should be gathered from thriving healthy trees of the true Red-twigged kind; and then by far the greatest part of the young plants will be of that sort. The seeds will be ripe in October; and let a dry day be made choice of for gathering them. As the seeds grow at the extremity of the branches, and as it would be tedious to gather them with the hand, they may be beaten down by a long pole, having a large winnowing sheet, or some such thing, spread under the tree to receive them.

When you have got a sufficient quantity, spread them in a dry place, for a few days, and then sow them. The manner of sowing them is in beds of rich mould, about an inch deep, and about an inch asunder all over the bed. The plants will appear the first spring, and should stand in the seminary two years, when they should be removed to the nursery, planting them in rows, about two feet and a half asunder, and a foot and a half in the rows; and here they may remain until wanted for use.

2. The AMERICAN LIME. Of this species also there are a Variety or two, which indeed differ very little in appearance from any of the Common European sorts; for the leaves are heart-shaped like theirs. There are a larger and a smaller leaved sort. Their edges are finely serrated, and end in acute points. These beautifully cordated leaves that thus run into acute points, have their under surface of a paler green than their upper. The larger leaved kind is by far the finest sort, and the branches vary from all others of this genus, in that they are covered with a dark brown bark. The flowers excite no attention in the Gardener; but the Botanist is delighted when he finds they are furnished with nectaria, whereas the flowers of our Common Lime Tree have none. The flowers are produced in

bunches, like our Common sort, but make no better figure. They are very fragrant; and are succeeded by coriaceous capsules, containing the seeds.

The PROPAGATION of this species is the same as that of the European sort, if seeds can be procured from abroad; if not, a few plants must be obtained. These should be planted in a light rich soil, if such can be had, for in such they shoot the strongest; though almost any other will do. After these plants have stood a year or two, they should be headed near the ground, for stools. They will then shoot out many young branches from these, which may be layered in the autumn; though, if they stand two years, there will be greater plenty of young twigs for layering; for every shoot of the first summer will the year following divide into several. When the layering of these is to be performed, which ought to be in the autumn, the strong two-years shoots must be brought down; and if they are stiff and do not bend readily, they must have a gentle plash with the knife near the bottom; a slit should be made at the joint for every one of the youngest twigs, and their ends bent backwards, that the slit may keep open. This being done, the mould must be levelled among the layers, and the ends of them taken off to within one eye of the ground. The business is then done; and the autumn following they will have all good roots, many of which will be strong, and fit to plant out to stand, whilst the weakest may be removed into the nursery ground, in rows, to gain strength. All the sorts of Lime Trees will also grow from cuttings; but this is found to be an uncertain method; and if it was more certain, plants raised either by them or layers are not near so good as those raised from seeds, which way ought always to be practised where they can be obtained. Where that is not to be done, any art must be used to obtain some few plants; and if the Gardener should happen to procure a cutting or two of the American sorts, set them in pots, and plunge them in the bark bed; let him water and shade them, and they will be sure to grow; and these he may afterwards encrease at pleasure.

VIBURNUM.

LINNEAN Class and Order, *Pentandria Trigynia*: Each flower contains five males and three females. There are elven SPECIES; eight of which are proper for our collection;

1. VIBU'RNUM *La'ntana:* The COMMON VIBURNUM; or WAYFARING TREE, or PLIANT MEALLY TREE; *a deciduous shrub or tree;* native of England, and most of the Northern parts of Europe.

2. VIBU'RNUM *Denta'tum:* The SAW-LEAVED VIBURNUM; *a deciduous shrub;* native of Virginia.

3. VIBU'RNUM *Nu'dum;* The ENTIRE-LEAVED VIBURNUM; *a deciduous shrub;* native of Virginia.

4. VIBU'RNUM *Prunifo'lium:* The PLUM-LEAVED VIBURNUM, or the BLACK HAW; *a deciduous shrub;* native of Virginia and Canada.

5. VIBU'RNUM *O'pulus;* The MARSH ELDER; *a tall deciduous shrub;* native of moist grounds in England, and most parts of Europe.

6. VIBU'RNUM *Acerifo'lium:* The MAPLE-LEAVED VIBURNUM; *a deciduous shrub;* native of Virginia.

7. VIBU'RNUM *Cassinoi'des:* The BASTARD CASSI'NE; or CASSIOBERRY, or SOUTH SEA THEA; *a deciduous shrub;* native of Virginia.

8. VIBU'RNUM *Ti'nus:* The LAURUSTINUS; *an evergreen shrub;* native of Italy and Spain.

1. The COMMON VIBURNUM will grow to be twenty or more feet high, though it may be kept down to any height desired; and in such gardens as are at a distance from the places where it grows common, and in which it has not been before observed; in such gardens it is enquired after, and attracts the attention of those who walk therein, almost as much as any shrub in the whole Collection. The branches are not very numerous, and in winter they are covered with a smooth grayish bark, inclined to a brown colour, especially near the bottom of the shoots. The younger, as they

shoot, are white and downy, and the ends, especially in winter, feel soft and woolly. The branches are long, and exceeding tough. They will often shoot near six feet from the bottom in a year; and make the best bands for fagoting. The leaves are very large, heart-shaped, very full of large veins, and have their edges serrated. Their upper surface is of a dark green colour, but their under is white, and like cotton; and they are placed opposite by pairs on the branches. The flowers are produced at the ends of the branches: the buds will be formed the preceding summer, which continue to get larger in the autumn; all winter they will be in a state of increase, and at that season they terminate the ends of the branches like so many rough buttons. The flowers, when out, will be in large umbels, to form which these buds encrease in size all spring, but shew little of what may be expected from them until about May, when they begin to divide, and shew that they are growing to be bunches of flowers. In June, they will be wholly out, and formed into large umbels; they are of a white colour; and have a good appearance. These flowers are succeeded by berries, which are also ornamental, and cause variety; for they will be first of a fine red colour, and afterwards of a deep black. This plant likes a dry situation.

There is a *Variety* of this sort with more oval leaves; but the differences are very inconsiderable in all respects. There is also the *Striped-leaved Viburnum*, which is coveted by those who are fond of variegated plants.

2. The SAW-LEAVED VIBURNUM is so called, because the leaves are more beautifully serrated than any of the sorts. It is at present not very common. Its branches, leaves, and flowers, are not so large as the former, but they are of a more genteel growth. It will grow to the height of about ten feet. The bark is smooth, and of a light colour; and the leaves are of a fine light green. They are tolerably large, though nothing like those of the other sorts, and stand on longish footstalks, which give them a fine air. They are strongly veined, and have their edges finely serrated. They are of a roundish oval figure, and are placed opposite by pairs on the branches. The flowers are produced in June, at the ends of the branches, in very

covered with a smooth and almost white bark. They are often produced opposite by pairs; though in general they are of an irregular growth. The young shoots will be cornered; and this is more perfect in the more vigorous ones, being composed of five or six flat sides. The leaves are large and ornamental, of a fine green colour and a soft contexture, composed of three large lobes, which are jagged at their edges, and grow on glandulous footstalks. In autumn these leaves have exquisite beauty; for they die to so fine a red, as to have a striking effect at that season. The flowers are produced in large umbels, in the beginning of June, all over the tree, and have a grand look. Each umbel is composed of very many hermaphrodite flowers, which of themselves make no great figure; but they are surrounded by a border of male flowers, which are white, and are so ornamental to each bush as to throw a lustre over the whole tree. Neither does this shrub cease to exhibit its beauties when the flowers are over; for besides what it affords by its leaves, which are inferior to few other trees, both in summer and autumn, the hermaphrodite flowers will be succeeded by fine scarlet berries, which will grow in such large bunches, and be produced in such plenty all over the shrub, as to give it an appearance superior to almost any thing of the berry kind; and were it not for its commonness, this would, on their account only, be ranked amongst trees of the first value.

The *Gelder Rose*, or *Snowball Tree*, is a Variety only of the preceding sort; its orgin was accidental, and it is kept up and continued by culture in our gardens. The nature of the shoots and size of the tree, together with the colour of the bark, differ in no respect from the former. The leaves also are of the same form, are produced in the same manner, and die away to the same delightful red in the autumn. The Variety this sort occasions, then, is by the flowers; and by these this variety is so great, as to be exceeded by scarcely any two distinct species whatsoever. They are produced in the beginning of June, all over the tree, in large globular bunches, Each bunch is composed of numerous male flowers, of the same nature with those that surround the hermaphrodite flowers of the former sort. Their colour is white, like those; but being produced in large globular heads, and in great plenty, have a much finer appearance. **HANBURY** adds, " It is delightful to see this tree usher in the month of June, as it were, with its glorious flowers, which will then at a distance have the appearance of balls of snow, lodged in a pleasing manner all over its head."

6. **MAPLE-LEAVED VIBURNUM.** This is a middle sized shrub, sending forth several branches, which are rough, and full of pith. The leaves are composed of three principal lobes, like those of the Maple Tree, and grow on smooth footstalks. The flowers come out from the sides of the branches, in umbels. Their colour is white; they appear in June; and are *rarely* succeeded by seeds in England.

7. **BASTARD CASSINE**, Cassioberry Bush, or South Sea Thea, is rather tender, will grow to about ten feet in height, forming itself into a bush by rising with three or four stems, and sending forth numerous branches from the bottom to the top. The leaves are of an oblong, lanceolated figure, serrated, grow opposite by pairs, and continue on the trees until the nipping frosts come on; insomuch that in the early part of a mild winter, they have been taken for an Evergreen. These leaves are of an exceedingly bitter nature, if chewed; and it is said that an infusion of them proves efficacious in removing pain, bracing a relaxed stomach, and restoring a lost appetite. The flowers are produced in bunches from the sides of the branches. Their colour is white; they appear at the end of July; and are succeeded by red berries in the autumn. Whenever this plant is to have a share in a Collection, a naturally warm and dry soil, that is well sheltered, must be sought for, otherwise there is a chance of losing it by frosts; or if the plant is not wholly destroyed, the young branches will be killed, and the tree so haggled, as to have rather a bad appearance with others in the spring.

The first six sorts are very easily **PROPAGATED**, either by seeds, layers, or cuttings. No particular art need be used for the seeds, whether they be of the sorts of our own ripening, or of those we receive from abroad. A border of common garden mould, made fine, will be sufficicient; though it may be proper to observe, that many of them will lie until the second spring before they appear. The beds, before and after the plants are come up, will want nothing except weeding; and when they are a year or two old, they may be planted in the nursery, at small distances; and in two or three years more they will be fit to be finally planted out. 2. They are all easily propagated by layers also; for if branches are pegged down, and the mould anyhow thrown on them, they will have plenty of roots by the next autumn; and most of them will be good plants for almost any place. This freedom, however, should be given to none but those of our own country; for the American sorts, as being strangers, demand more care and neatness in the performance. 3. They are also easily propagated by cuttings; for the young shoots of these trees cut into lengths, and planted in a moist garden soil, in the autumn, will any of them grow; and this is our common method of propagating them. However, if a person has only a few plants of the American kinds, the best way is to make sure of encreasing them by layers.

If a large quantity is wanted, the best way to PROPAGATE the MARSH ELDER is by seeds. As the GELDER ROSE is a male flowering Variety, and never produces any seeds, it must always be propagated by layers or cuttings, by which the Variety will always be preserved.

The BASTARD CASSINE is PROPAGATED by layers. The young shoots are fit for this purpose; and when they have taken root, if they are planted in pots, and protected for two or three winters, until they are grown strong plants, either in a greenhouse, or under a hotbed frame or some cover, there will be less danger of losing them than by planting them immediately in the nursery, or where they are to remain for continuance. However, a person who has not these conveniences, must fix on the warmest and best sheltered spot he can find; and having prepared the ground, let the layers be taken from the old plants in the spring; if the weather be moist, it will be so much the better; and let him plant them in the nursery, row by row, at two feet asunder. In the summer, they should be watered in dry weather, and when the winter frosts begin to come on, the ground should be covered with peaſe ſtraw almoſt rotten, old thatch or tanners bark, to keep them from penetrating the roots. By this means many of the plants will be preſerved; and this care may be repeated every winter until they are planted out to ſtand. But this is not ſo good or ſo ſafe a method as potting them, and managing them as before directed; for they may be then turned out of their pots, when wanted, mould and all together, without feeling the effect of a removal.

8. The LAURUSTINUS is one of the greateſt ornaments of our gardens in the winter months, not only as it is a fine Evergreen, but becauſe, during that ſeaſon, it will either be in full blow, or elſe exhibit its flowers and buds in large bunches ready to burſt open, in ſpite of all weather that may happen; and the boldneſs of theſe buds, at a time when other flowers and trees ſhrink under oppreſſive cold, is matter of wonder and pleaſure. There are many VARIETIES of *Lauruſtinus*; but thoſe moſt remarkable are, The *Narrow-leaved Lauruſtinus*, The *Broad-leaved Lauruſtinus*, The *Hairy-leaved Lauruſtinus*, The *Shining-leaved Lauruſtinus*, The *Silver ſtriped Lauruſtinus*, The *Gold ſtriped Lauruſtinus*.

The *Narrow-leaved Lauruſtinus* is ſo called, becauſe, of all the ſorts, the leaves of this are ſmalleſt. It is generally planted among the low ſhrubs; though we have known it trained up againſt a wall to fourteen or ſixteen feet high. It produces its branches irregularly, which will grow ſo thick and cloſe as to form a buſh; for it hath that appearance when planted ſingly in open quarters. The bark in ſummer is green, and often a little hairy and glandulous; in winter it is frequently of a dark brown colour. The leaves grow by pairs, ſtanding oppoſite, on ſtrong and very tough footſtalks. They are of an oval figure, and their edges are entire. Their upper ſurface is ſmooth, and of a ſtrong green colour; but their under is lighter, and a little hairy; and they are at all ſeaſons very ornamental. The flowers are produced in large umbels, and are well known. It generally will be in full blow in January, February, March, and April; during which time it will be covered with bloom, cauſing a delightful effect.

The *Broad-leaved Lauruſtinus* differs from the former sort, in that the leaves are broader, and the roots proportionally stronger. It will arrive to a greater height than the other sorts, and the umbels of the flowers are larger, though they will not be produced in such plenty: it nevertheless makes an excellent figure.

The *Hairy-leaved Laurustinus* is as free a shooter as the other, and the leaves are frequently as large, and differs from that in scarcely anything but that the leaves are hairy; the young shoots also are hairy to a great degree. In this respect it makes a small Variety. It flowers like the other sorts; but blows rather later than those.

The *Shining-leaved Laurustinus* is still of about the same growth, and the leaves are large and fair. They are of an oval figure; and their upper and under surfaces are both shining, though their under is veined, and of a paler green. It differs only in that the leaves and young shoots are smooth, shining, and free from hairs; and being of this lucid green, force esteem. It generally flowers later than the first two sorts.

The *two variegated sorts* are only one or other of the above sorts, striped with white or yellow; though the sorts striped with silver we have met with have been the Broad-leaved kinds; but the Gold-striped sorts have always been the first, or Narrow leaved kind, with leaves striped or blotched with yellow; and on these accounts, those who are fond of variegated plants covet them in their Collection.

All these sorts are easily PROPAGATED; for if in winter a little mould be anyhow thrown amongst the young branches, they will strike root, and be good plants by the next autumn. Notwithstanding these plants, however carelessly the mould be thrown, will grow, it is not here recommended to the Gardener to practise that custom; it is expected that he be always neat in all his work; it is mentioned here only to show what may be done; but let him gently lay the branches down, strip off some of the lower leaves, and with his hand draw the mould amongst the young shoots, and leave them neated up as if a workman had been there; and these will be all good plants by the autumn, the strongest of which may be set out to remain, whilst the youngest may be planted out in the nursery, at small distances, to gain strength.

By the severe frost of 1794-5, the Laurustinus was very much hurt, especially in exposed situations.

VINCA.

LINNEAN Class and Order, *Pentandria Monogynia:* Each flower contains five males and one female. There are five SPECIES; three of which will bear our open air.

1. VI'NCA *Ma'jor:* The LARGE-LEAVED PERVINCA, or PERIWINKLE; *a shrub or creeper;* native of England, France, and Spain.

2. VI'NCA *Mi'nor:* The SMALL-LEAVED PERVINCA, or PERIWINKLE, or the COMMON PERIWINKLE; *a creeper;* native of Germany, France, and England.

3. VI'NCA *Lu'tea:* The YELLOW PERVINCA, or PERIWINKLE: *a creeper;* native of Carolina.

1. The LARGE GREEN PERIWINKLE has smooth stalks of a pale green colour, which if supported, will arise to about four or five feet high; but, unsupported, the tops turn again at about two feet high, and thus at a distance form the appearance of a round evergreen shrub of that low size; and when they are designed for this, the suckers must be always taken off, otherwise they will soon form themselves into a pretty large bed; for they will send out these at some distance from the rotten plant, and the very tops bending to the ground will often take root, which, unless taken away or prevented, will soon spread abroad, and take off the shrub-like appearance of the plant. The leaves are of a delightful evergreen, and stand opposite by pairs on strong footstalks. Their edges are entire, and they are of an oval heart shaped-figure. They are smooth and shining, and very ornamental in the winter months.

The flowers are produced from the wings of the stalks, almost all the year round; are blue; but there will be sometimes white ones seen amongst them. They are composed of one petal, standing singly on upright footstalks. The tube is narrow, and nearly of a funnel shape; but their brim is large and spreading, so as to form a pretty large well looking flower.

2. The COMMON GREEN PERIWINKLE has smooth green stalks, like the former, though they are much more weak and slender, and will trail along the ground, and strike root at almost every joint: so that they will soon run a great way, their general surface putting on a kind of rock-work-like appearance; though if they are planted near other shrubs, they will rise to two or three feet high, and will cause a pretty look amongst them this way. The leaves are smooth, and of a fine shining green colour. They are of an oval figure, their edges are entire, and they stand opposite by pairs on strong short footstalks. The flowers are composed of one petal. They spread open at the rims, and grow from the wings of the stalks in the same manner as the former, though they are much smaller; and as they are not so subject to flower in winter, that is another reason for their being held less valuable.

The *Varieties* of this species are,

The Green Periwinkle with Blue Flowers,

The Green Periwinkle with White Flowers,

The Green Periwinkle with Double Blue Flowers,

The Green Periwinkle with Double White Flowers,

The Green Periwinkle with Double Purple Flowwers,

The Gold-striped, Periwinkle with White, Blue, and Double Flowers,

The Silver-striped Periwinkle with White, Blue, and Double Flowers.

All these sorts are *Varieties* of the Common Periwinkle; though they may differ in the colour or properties of the flowers, or the variegation of the leaves. The White-flowering Periwinkle is this very sort, only the flowers are white; the Double Periwinkle is the same sort, only the flowers are double, and of a reddish colour; the Gold-striped Periwinkle is also this sort, only the leaves are beautifully variegated with a gold colour; and the Silver-striped with that of silver: The variegations are so completely done, and their stripes so little subject to vary or run away, that they are highly esteemed amongst the variegated tribe. There are Double Blue and Double White flowers belonging to both these sorts; and these are all the hardy Varieties Nature affords us from this genus.

3. **Yellow Periwinkle** has a twining slender stalk, which twists about whatever is near it. The leaves are oblong, and not much unlike those of some of our Willows. The flowers are both single and double; and thus continue in succession from June to the end of summer. This species must have a warm light soil, and a well sheltered situation.

The **propagation** of these sorts may be easily seen to be not very difficult. With regard to the first sort, the suckers it naturally sends out may be taken up and multiplied at pleasure; and the ends of the shoots that turn again, and strike root into the ground, will be good plants when taken off: Nay, the very cuttings will grow; so that any desired number of these plants, be it ever so great, may be soon obtained. With regard to the other sorts, there is no end of their multiplying; for as they will strike root, if permitted to lie on the ground, at every joint, one good plant of each sort will produce a hundred of the like in a season or two.

All these sorts are very hardy, and will grow under the drip of trees, and flourish in all soils and situations. No plants are more proper to be set among low or larger shrubs, either in the evergreen or deciduous quarters, to form tufts or beds in the resemblance of rock-work, or to be placed near other shrubs, by whose assistance their slender stalks may be supported to the height Nature will admit them to rise.

VISCUM.

Linnean Class and Order, *Dioecia Tetrandria:* Male flowers containing four parts, and female flowers containing one part: upon distinct plants. There are nine Species; one of them common in many parts of this island.

Vi'scum *A'lbum:* The Misletoe; *a parasitical plant;* native of England and most parts of Europe.

The Misletoe is a singular plant. It will grow upon trees only; more especially upon the Crab, the Hawthorn, and the Maple: It is not unfrequent upon the Ash; but seldom, very seldom indeed, is seen upon the Oak; and but rarely upon the Willow. It has a thick fleshy leaf standing stiff upon the twigs, which are green and forked. The whole of the plant is of a green colour, and of the shrubby, bushy kind, rising in numerous stems; dividing into forked branches; and these again into forked twigs, thick set with leaves. This thickens the general surface of the plant, and forces it into a spherical or more generally a hemispherical form. A tree thickly scattered with this plant, has somewhat the appearance at a distance as if overgrown with Ivy. The Misletoe, however, is of a lighter green than the Ivy; especially when full of berries, which are of a light transparent Pea-green colour, and about the size of the common Field Pea; but when full ripe they become paler, taking the appearance of white currants. The pulp is viscid in the extreme, being of the consistence of thick gum water. Each berry incloses one vetch-like seed. In the cyder counties the Misletoe is a mischievous intruder upon the Apple Tree; so much, that were not the Farmers to cut it out every three or four years, or as often as necessary, it would destroy the tree. It is very common to see Crab Trees, especially in or near woods, entirely killed by this truly parasitical plant. This is a curious fact in Nature, and affords ample subject for reflection.

The Misletoe may be said to be a superior order of Plants; for, like the animal creation, it feeds not upon the juices of the earth, but upon those of vegetables. This, added to its supposed medicinal qualities, assisted, probably, in rendering it sacred among the ancient Britons; especially when found growing upon the Oak; which tree they also held sacred.

The PROPAGATION of this Plant is supposed to be, naturally, by the Misletoe Thrushes, which delight in its glutinous berries, and which in autumn, the season of their becoming ripe, repair in flights to the places where the Misletoe abounds. It seems to remain unascertained whether the seed be conveyed in the fœces of the bird, or whether, sticking to its beak amongst the glutinous matter, the bird in cleaning its beak wipes it off upon the branch of the tree it happens to perch upon. This last is the more probable supposition; as it has been found, that by sticking the seeds upon the clean smooth part of the bark of some or all of the trees abovementioned, this plant may be artificially propagated. We do not learn, however, that the attempt has yet been successful upon the Oak or the Willow. It seems probable that the Bird, in wiping its beak across the branch, ripples the cuticle or outer rind; and this ought perhaps to be copied in attempting artificial propagation. In places where this plant is unknown, the cultivation of it would add a striking variety to shrubery quarters; but might be mischievous in its effects.

VITEX.

LINNEAN Class and Order, *Didynamia Angiospermia*. Each flower contains four males and one female; two of the males being longer than the other two; and the seeds being covered. There are eight SPECIES; one only of which is proper for our Collection.

VI'TEX *Agnusca'stus*: The AGNUSCASTUS, or the TREE OF CHASTITY; *a deciduous shrub*: native of marshy, moist places in some parts of France, Spain, and Italy.

The TREE OF CHASTITY (being held by the antients as conducive to that amiable virtue) affords two *Varieties:*

The Broad-leaved Chaste Tree.

The Narrow-leaved Chaste Tree.

One description will nearly serve for both sorts; though it has been observed, that the Narrow-leaved sort will grow to be the tallest. The branches are produced from the bottom and sides of the stalk. They are very pliable, and the joints are long. It is difficult to express the colour of the bark. To say it is gray is not proper; and to say it is brown is not true; it is of a colour between both, though, in different soils, the bark of some trees will be of a darker colour than others. The leaves are digitated, being composed of several folioles, which so unite at their base in one common footstalk as to resemble an open hand. These folioles are of a dark green colour; and their number is uncertain; being five, six, seven, and sometimes eight. They are narrow, and the longest grow always in the middle, whilst the shorter occupy the outsides. This character is common to both the sorts; though it is observable, that the folioles of the Broad-leaved sort are both shorter and broader, which occasions its being so called. Their edges are also serrated, whilst those of the Narrow-leaved are intire; and in this the most important difference of these plants consists. The flowers of both sorts are produced at the ends of the branches, in whorled spikes. These spikes are pretty long, and their colour is that of a blueish purple. They appear in September and October; and are not succeeded by seeds in England. Each individual flower is inconsiderable; but the whole spike makes a good show: and the circumstances of the flowers being produced late, even often when most other flowers are over, as well as being also very fragrant, greatly heighten their value. The early frosts often destroy the beauty of these spikes, before and when they are in full blow; so that it is no wonder their ornamental fruit seldom, if ever, succeeds them.

There is a *Variety* of each kind with white flowers.

The PROPAGATION of these sorts is easily done, either by layers or cuttings. 1. The young shoots being layered, any time in the winter, will have roots by the autumn following; though it will be proper not to take them up until the spring, as they shoot late in the autumn, and have often their ends destroyed by the frosts. When this work is deferred until the spring, all the killed ends may be taken off; and all danger from severe frosts being over, they will meet with no check in their preparing to shoot. The removing of these trees in the spring, however, is not absolutely necessary; for it may be done any time in the winter, though the cutting off the dead ends should be deferred until the latter end of March, when they should be gone over with the knife, and cut down to within an eye or two of the ground, whether planted in nursery lines, or finally set out to stand. 2. Plenty of plants may be soon raised by cuttings. About the middle of March is the best time for planting them; and they should be set in a shady border of good light garden mould. Nothing but weeding, and now and then watering, will be required all summer; though, if the place is not naturally well sheltered, they must be defended from black frosts by sticking plenty of furze bushes all around them. If this be judiciously done, it will take off the keen edge of frosty winds sufficiently, and will occasion much less trouble and expence than reed hedges, &c. All these plants are very hardy; but they require this protection, to preserve the young shoots. Here they may grow until they are fully planted out; and if it be a moist, light, rich soil, and a well sheltered situation, they will like it the better.

VITIS.

LINNEAN Class and Order, *Pentandria Monogynia*: Each flower contains five males and one female. There are eight **Species**; four of which are adapted to ornamental plantations.

1. Vi'tis *Labru'sca:* The Wild Virginia Grape; *a climber;* native of many parts of North America.

2. Vi'tis *Vulpi'na:* The Fox Grape; *a climber;* native of Virginia.

3. Vi'tis *Lacinio'sa:* The Parsley-leaved Grape; *a lofty climber;* native of Canada.

4. Vi'tis *Arbo'rea:* The Pepper Tree; *a shrub or climber;* native of Virginia and Carolina.

1. The Wild Virginia Grape, if desired for its climbing property, should be planted among pretty large trees or shrubs; for, by the assistance of its well-holding tendrils, it will arrive to a great height; and if the shrubs that grow near it be low growing ones, it will entirely overtop them; and in summer, its leaves being large, almost conceal them from the sight. These large ornamental leaves have their edges indented, and are nearly divided into three lobes, though they are of a heart-shaped appearance; and downy on their under side. The flowers are produced in bunches, like the other species of the Vine; and they are succeeded by round, rough-flavoured, black fruit.

2. The Fox Grape. The name of this species naturally brings the fable of the fox and grapes to the memory; and it is very common for those who are not skilled in the history and nature of plants, to ask if this species is not possessed of more excellent properties, or produces more desirable fruit, than most of the other sorts of the vine; whereas, alas! this sort is called the Fox Grape from the ill flavour of its fruit, which is like the scent of a fox, and which name the inhabitants of Virginia, where it grows naturally, have given it on that account. It must, like the former, be planted among largish trees; for it will overtop the small ones. The leave are large, smooth on both sides, of a heart-shaped figure, and their edges are indented. The flowers are produced in the Vine-like bunches; and they are succeeded by black fruit of the above named disagreeable flavour.

3. The Parsley-leaved Grape. The leaves of this sort are finely divided, and at a distance resemble

those of parsley, though larger. The stem is very thick, and the shoots are strong; so that when it is planted for a climber, the tallest trees must be appropriated for its support; otherwise it will be too powerful for trees of lower growth.

4. The **Pepper Tree** is a weaker shooting plant than any of the others, and affords singular beauty from its leaves. Their upper surface is of a fine shining green colour; their under is paler, and they are composed of a multitude of folioles of the most elegant and delicate texture. The shoots will arrive to a tolerable height by their tendrils, if they have trees near for their support; but they are very liable to be killed down very low in severe winters; on which account the plant should be stationed at first in a well sheltered place. Every spring the Gardener should carefully cut off not only the dead shoots, but shorten them within an eye or two of the old wood, which will make them shoot stronger, and the leaves will be larger and finer. The flowers are white, and are produced in bunches from the wings of the stalks; but we have never yet perceived any fruit to succeed them. The name Pepper Tree is a cant name, and was given it without any meaning by the inhabitants where it grows naturally.

All these sorts are PROPAGATED by cuttings, layers, or suckers. 1. The cutting must be the bottom of the last year's shoot; and if there be a bit of the old wood to it, it will be the better. 2. When raised from layers, the young branches should be pegged down, and a little soil drawn over them. They will strike root, and become good plants by the season following. 3. Suckers may be taken from these plants, and immediately planted; or may be set in the nursery for a year to gain strength before they are set out.

ULEX.

LINNEAN Class and Order, *Diadelphia Decandria*: Each flower contains ten males and one female; the males being joined at the base in two sets. There are two SPECIES; one of which is a greenhouse plant; the other is,

U'LEX *Europæ'us:* The FURZE, WHIN, or GORSE; *an evergreen shrub;* native of England, France, and Brabant.

The FURZE is so extremely common in this country, that how ornamental soever it may be in nature, it cannot with much propriety be admitted into our *ornamental* plantations; unless in remote quarters. Its *uses* however are many; as a fuel where wood and coals are scarce; and as hedge wood upon light barren land: its use as horse provender too seems to be fully proved, though not yet established.

HANBURY enumerates the following *Varieties*; some of which, if properly trained, may add a kind of secondary ornament to our grounds and shruberies.

The White-flowered Furze.
The long Narrow-spined Furze.
The Short-spined Furze.
The large French Furze.
The Round-podded Furze.
The Dwarf Furze.

The FURZE is PROPAGATED from seeds sown very shallow, in February or March. See the Article HEDGES.

ULMUS.

LINNEAN Class and Order, *Pentandria Digynia;* Each flower contains five males and two females.—LINNEUS makes only three SPECIES of ULMUS:

1. U'LMUS *Campe'stris:* Leaves double sawed; unequal at the base.

2. U'LMUS *America'na:* Leaves equally sawed; unequal at the base.

3. U'LMUS *Pu'mila:* Leaves equally sawed; equal at the base.

MILLER enumerates six SPECIES:

" 1. U'LMUS *Campe'stris:* Elm with oblong acute-pointed leaves, which are doubly sawed in their edges, and unequal at their base; called the COMMON ROUGH or BROAD-LEAVED WITCH ELM.

2. U'LMUS *Sca'ber:* Elm with oblong oval leaves, which are unequally sawed, and have leafy empalements to the flowers; called The WITCH HAZEL, or VERY BROAD-LEAVED ELM; by some unskilful persons called The ENGLISH ELM.

3. U'LMUS *Sati'va:* Elm with oval acute-pointed leaves, which are double sawed, and unequal at the base; called The SMALL-LEAVED or ENGLISH ELM.

4. U'LMUS *Gla'ber:* Elm with oval smooth leaves, which are sharply sawed on their edges; called The SMOOTH-LEAVED WITCH ELM.

5. U'LMUS *Holla'ndica:* Elm with oval acute-pointed rough leaves, which are unequally sawed, and a fungous bark; called The DUTCH ELM.

6. U'LMUS *Mi'nor:* Elm with oblong smooth acute-pointed leaves, which are doubly sawed; called The SMOOTH NARROW-LEAVED ELM, and by some The UPRIGHT ELM."

These six species of MILLER are all of them comprehended in the ULMUS *Campestris* of LINNEUS; so that Miller is silent as to LINNEUS's second and third species; and so is HANBURY, who only treats botanically of one species; namely, the ULMUS *Campestris* of LINNEUS: He nevertheless enumerates seven SORTS:

1. The true English Elm,
2. The Narrow leaved Cornish Elm,
3. The Dutch Elm,
4. The Black Worcestershire Elm,
5. The Narrow-leaved Wych Elm,
6. The Broad-leaved Wych Elm,
7. The Upright Wych Elm.

In another part of his work he says, "It would be endless, as well as needless, to enumerate the sorts of Elms: I have counted in my time more than twenty, in woods, hedges, &c. that have fell in my way when in quest of plants." The fact is, no genus of plants whatever is more incomprehensible to the Botanist than the Ulmus; for although we see among the cultivated Elms of this country, individuals as different from each other as are some individuals of distinct genera, yet every man who has attended closely to the several kinds of Elms growing in different parts of the kingdom, must have observed such a chain of intermediate kinds as renders classification extremely difficult; and must frequently have met with an individual, which he was puzzled to find a name for. LINNEUS, no doubt, having experienced this, lumped the whole mass of cultivated Elms in one species,—The *Ulmus Campestris*; and as a BOTANIST he may be right: As PLANTERS, however, we must beg leave to attempt a separation; and yet we are obliged to confess, that we cannot *describe* more than TWO *obviously distinct* VARIETIES. With respect to the second and third species of LINNEUS, we take it for granted they have not yet been introduced, or are but little known, in this country (if we are wrong, we beg to be set right): We therefore proceed to

ULMUS *Campestris:* The CULTIVATED ELM; *a tall deciduous tree;* found growing more or less, in one or other of its Varieties, in hedges about villages, in most parts of Europe.

The CULTIVATED ELM. Notwithstanding the chain of Varieties above mentioned, if we examine the two extremities, we shall find two plants very different from each other in their general appearance; and sufficiently distinct in the analysis to be considered, in a work of this nature, as distinct species: The leaf of the one is nearly oval, with an obtuse lance-like point; that of the other nearly circular, saving a narrow slender point, growing as it were out of the periphery of the circle. The membrane of the one is gross and rigid, of the other comparatively thin, delicate, and supple: When held against a strong light, the former appears opake; the latter, comparatively transparent. The nerves of *that* are stronger, set closer, and run more parallel; of *this*, more slender, fewer in number, and divide more into branches: *That*, in its general appearance, bears some resemblance to the leaf of the Chesnut; *this*, a very strong one to that of the Hazel. The branches of the Coarse-leaved sort are clean, straight, and slender, with a silvery bark; those of the Fine-leaved kind more divided, run shorter lengths, and are covered with a less delicate bark. The general tendency of the latter is more upright, being easily trained to a great length of stem; that of the former is to divide into spreading arms, and when attempted to be trained up with a tall straight stem, generally grows stooping with a nodding head like the panicles of an oat. The Coarse leaved kind matures its seed in this island, and is probably a native; the Fine-leaved sort seldom if ever perfects its seed with us, and is probably an exotic.

We therefore proceed to treat separately of these two sorts; considering the intermediate kinds as subordinate Varieties of these two:

1. The COARSE-LEAVED ELM, or the Chesnut-leaved Elm, or the Broad-leaved Elm, or the Wych Elm, or the North-country Elm.

2. The FINE-LEAVED ELM, or the Hazel-leaved Elm, or the Narrow-leaved Elm, or the South-country Elm.

1. The COARSE-LEAVED ELM will grow to a very great size. Mr. Marsham mentions a Wych Elm by Bradley Church in Suffolk, which in 1754 measured (at five feet high) twenty-five feet five inches and a half, and in 1767 twenty-six feet three inches. The leaves of this species of Elm have been already described to be of an oval figure, with a thick membrane and strong nerves; their size varies with the individuals they grow upon, some trees of this species bearing leaves considerably smaller and *much narrower* than those of some individuals of the Hazel-leaved sort: the common distinction therefore of these two kinds of Elms into *Broad-leaved* and *Narrow-leaved* is altogether improper—their *figures* forbid it: It would be equally proper to distinguish an oval from a circle, by calling the former broad, and the latter narrow.

The outline or general appearance of this tree is sometimes strongly featured, coming near to that of the Oak: In general, however, it is liable to be ragged, rather than irregular, and in point of *beauty* is frequently exceeded by the Lime, the Beech, and its sister tree the Fine-leaved Elm. Its *uses* are many. The whole tribe of Elms have a peculiar excellency by which they stand alone, and are rendered in a great measure independent of other woods. The Oak is pre-eminent for durability, the Ash for toughness, the Beech for closeness of texture and cleanness of grain, and the Elm for its tenacity or adhesive quality, being less liable to be split than other woods: This renders it singularly useful for many important purposes. The keels of ships are now almost universally laid with Elm, and sometimes the gunwales, especially of ships of war, are made of this wood; it being less liable to splinter off, in action, even than English Oak; as keels made of this wood are less apt to split in taking the ground. Another very important use of Elm is for naves of wheels of carriages of every kind, whether of use or of pleasure. There is a sort in Yorkshire peculiarly adapted to this purpose, which goes by the name of the *Nave Elm;* it is of the Coarse-leaved kind.

The Coarse-leaved Elm may be PROPAGATED from seeds, or by layering. HANBURY says, "In order to propagate them by layers, proper stools for the purpose must be first obtained; to procure which, let a piece of good ground be double dug, and plant Elms of about four or five feet high over it, at the distance of about ten feet: If they make good shoots in the first year after, they may be cut down early in the spring following; if not, they should remain two years before they are headed for stools; which should be by cutting them down to within half a foot of the ground. After they are cut down, they should be suffered to grow undisturbed for two years: The ground between the stools must be dug in the winter, and constantly hoed as the weeds arise in the summer; and at the end of that time, that is two years, the branches growing from these stools will be fit for layering; which may be performed thus: Excavate a piece of ground wide enough to receive a whole branch, and let the hollow be about half a foot deep; then splash the branch with a knife, near the body of the stool, that its head may be more readily brought into the prepared place: Next, thrust an hooked stick into the ground, to hold it close; take off all the superfluous branches, which cross and would otherwise incommode those that are to be continued. After this, cut all the remaining young branches across half through with the knife; turn the edge towards the end, slitting it about half an inch. When this is done on all the young branches, the mould should be gently put amongst them, and every one of them should have their ends bent towards the stool, that the slit may be open. Laſtly, having the whole vacuity filled with its own mould, smooth and even, take the end of each twig off that peeps above the ground, down to one eye, and the branch is layed, and will afford you as many plants as there are buds peeping out of the ground. Proceed in like manner to the other branches of the same stool, then to the next stool in order, and so on until the whole business of layering is finished. By the autumn following, these layers will have taken root, and many of them will have made a shoot of near a yard in length. It is now necessary to take them from their stools, and plant them in some double dug ground in the nursery. They should be set in rows three feet asunder, and the distance allowed them from each other in the rows ought to be a foot and a half. Here they may stand till they are planted out where they are to remain, with no farther trouble than digging the ground between the rows every winter, and in the summer carefully watching those which shoot out two branches at the head, and nipping the weakest of them off. After the layers are taken up, the stools must have all the wounded parts, occasioned by the former splashing, taken away; the old branches also should be cut off, pretty close to the stem; and in the spring, they will begin to shoot out fresh branches again, for a second layering, which will likewise be ready to have the same operation performed the second year after: and thus may this layering be performed on these stools every other year. But Nurserymen who would raise great quantities of trees this way, should be provided with two quarters of stools, to come in alternately, so that from one or other of them they may annually receive a crop." We have given Mr. HANBURY's method in his own words, in order to convey to our readers in the fullest manner *his method of layering.*

His method of PROPAGATING the Elm from seeds, we also give at length; for the Elm standing next to the Oak at the beginning of his book, he has treated more fully of that article than any other (the Oak only excepted), and frequently refers to it in the course of his work. He says, "Let the seeds be gathered the beginning of June, it being the time when they are full ripe. When gathered, spread them three or four days to dry; for if they were to be sown immediately after they were gathered, they would rot. Having been spread about that time, and the mould, which ought to be fresh and good, being in readiness for their reception, mark out your beds four feet wide, and let the alleys between them be a foot and a half or two feet broad. Rake the mould out of the beds until they are about an inch deep; riddle that which came out of the beds into them again, until the bottom of each bed is raised half an inch (*i. e.* half filled) with riddled mould; then gently press the mould down with the back of the spade, and sow the seeds thinly all over it with an even hand, covering them down with fine earth about half an inch deep. When the seeds are all sown this way, the beds should be hooped, and covered with mats, to be shaded in that hot season of the year; and they should also sometimes be refreshed with water: Part of the young plants will come up in about a month, or sooner; the others not till the spring following. From the time the seeds are sown to their appearance above ground, whenever rain falls, be careful to uncover the beds, and as ready to cover them again when the scorching beams of the sun break out. About the end of August, the mats should be wholly taken away, that the plants may be hardened against winter: the spring following, a fresh breed will present themselves among those that came up the summer before. All the summer following they should be constantly kept free from weeds, and watered as often as dry weather shall render it necessary; and in October or spring they may be planted out in the nursery, at the distance before prescribed for the layers, and afterwards should be managed like them."

2. The FINE-LEAVED ELM will also grow to a great height and considerable bulk: We do not, however, find any tree of this kind upon record. The largest Elms we have seen, of the Fine-leaved sort, grow in the Vale of Gloucester. There are several in the

parish of Church-down, which girt, at five feet high, from ten to twelve feet. But the finest Elm in the Vale stands in the road between Cheltenham and Tewkesbury—within a few hundred yards of the Boddington Oak (See QUERCUS). It is known by the name of PIFFE's ELM; and the turnpike gate, the fence belonging to which is fastened at one end to this tree, takes its name from it; being called "Piffe's Elm 'Pike." The smallest girt of this tree, which falls about five feet high, is at present (1783) exactly sixteen feet. At ten feet high it throws out large arms, which have formerly been lopped, but which now are furnished with tree-like shoots, rising, by estimation, to seventy or eighty feet high, with an extent proportionable, exhibiting all together the grandest tree we have seen; not so much from its present size, as from that fullness of growth and vigour which it now wears. There is an Elm of the Small leaved sort in Hyde Park, whose stem is larger than this; but it is hollow, its head much impaired, and is a mere dotard compared with Piffe's Elm; which we mention the rather as it may be a tree in ages to come, and, standing as it does in a well soiled country, may swell out to twice its present size.

The leaves of this species of Elm have been already fully described; it remains only to observe, that notwithstanding we are accustomed to see trees of this sort trimmed up to mere maypoles, or at best with close aspiring heads, yet, if planted singly and suffered to form their own head, they will take an outline equal to that of the Beech or the Linden; and where an immediate object or skreen is wanted, the Elm has two material advantages: it may be removed when of a great size, and its growth is quicker than that of any other tree which is equally ornamental. The *uses* of this species of Elm are similar to those of the Coarse-leaved kind; and in places where bricks are rendered dear by a want of a proper supply of fuel, as in Surrey and Kent, great quantities of this Elm are cut up for studs and weather-boarding for the sides of barns, stables, and even dwelling-houses; and in the Southern counties in general it is much used in carpenter's work of all kinds as a substitute for Oak.

The propriety of planting the Elm depends entirely upon the soil: It is the height of folly to plant it upon light sandy land. There is not, generally speaking, a good Elm in the county of Norfolk. By the time they arrive at the size of a man's waist they begin to decay at the heart, and if not taken at the critical time, they presently become useless as timber. This is the case in all light soils; it is in stiff strong land which the Elm delights. It is observable, however, that here it grows comparatively slow. In light land, especially it it be rich, its growth is very rapid; but its wood is light, porous, and of little value, compared with that grown upon strong land; which is of a closer stronger texture, and, at the heart, will have the colour and almost the heaviness and the hardness of iron: On such soils the Elm becomes profitable, and is one of the four *Cardinal Trees* which ought in preference to all others to engage the Planter's attention. It will bear a very wet situation.

The method of PROPAGATING this species of Elm is principally by layering (in the manner already dedescribed); the seeds not coming to perfection here, HANBURY recommends in very strong terms the grafting what he calls the True English Elm upon the Wych Elm; which he says has a stronger and more porous root, and will thrive upon poorer land. His reasoning, however, seems to flow from a theory perhaps ill grounded, rather than from practice. Nevertheless, as he seems to have taken particular pains in drawing up directions for this operation, we will, for reasons already assigned, transcribe them at length. "The stocks for the purpose should be the Broad-leaved Wych Elm, which must be raised from the seed, and planted out as before. When they have grown two years in the nursery, they will be of proper size to receive the graft; and the last week in January is the best time for the work. If a large quantity of Elm stocks are to be grafted, procure six men in readiness for the purpose. The business of the first man is to take the mould from the stem of the stocks, with a spade, down to the root, laying the top of the root bare; the next man is to follow him with a sharp pruning-knife, cutting off the heads of the stocks, and leaving the stumps to be grafted only about two inches above the root; the third man is the grafter himself, who having his grafts cut about four or five inches in length, all of the young wood, and such as has never bore lateral branches, in a dish, takes out one of them, and holding it in his left hand, the taper end being from him, with the knife that is in his right he takes off a slope about an inch and half or two inches long; and if the grafter be an artist, it will be cut as true as if wrought by a plane. This done, he makes a small cut across, nearly at the top of the slope, and then proceeds to prepare the stock to receive it, which is effected by sloping off a side of it, of the same length with the sloped graft, that the parts may fit as near as possible. He then makes a cut nearly at the top of the stock downward, to receive the tongue he had made in the graft; and having properly joined them, he proceeds to the next. After the grafter follows a person with bass matting, cut into proper lengths; and with these he ties the grafts pretty close to the stock. The fifth man brings the clay, which should have been prepared a week or longer before, and well worked and beaten over, mixed with a fourth part of horse dung, and some chopped hay, in order to make it hang the better together; with this he surrounds the graft and the stock. Lastly, the sixth man comes and closes the clay, so that there may be no probability of its being washed off. Two or three rows being grafted, let an additional hand or two be employed, either in drawing the earth up above the clay, so that it may be wholly covered, or digging the ground between the rows, and levelling it so that nothing of the performed work may appear, except the tops of the grafts above ground. The danger of frost renders this precaution highly necessary; for if it should be delayed a night or two, and sharp frosts should happen, the clay will most of it fall off, and thus the work will require to be repeated; whereas, when it is lapped warm in the manner directed, there will be no danger of such an accident. A good workman, with the above mentioned necessary assistance, will graft about fifteen hundred stocks in a day. In the spring, the buds will swell, disclose, and shoot forth nearly as soon as those of the tree from which they were taken. By the latter end of June, they will be shot a foot and half, when they should be freed from the clay; the matting should be also taken off, and themselves left to sport at ease with all the vegetative powers. At this time, of those which have put forth two shoots, the weakest should be taken up, to strengthen the other, and to lighten the head, which would otherwise be subject to be broken off by high winds. By autumn the shoot will have grown about a yard in length; and in the winter dig the ground between the rows. In this place they may remain till they are of a size to be planted out for continuance, with no other trouble than what was directed for the layers; namely, keeping them clear of weeds, digging between the rows in the winter; at the same time taking off all very large side branches; and in the summer pinching off such young shoots, in the head, as may have a tendency to make the tree become forked. This practice of grafting will be found a valuable improvement of the English Elm, if we consider the nature of the Wych Elm, on which it is grafted. First, the Wych Elm will not only grow to the largest size of all the sorts, but will grow the fastest. However, this is not to be wondered at, if we examine the root, which we shall find more fibrous, and the pores larger and in greater numbers than in any of the other Elms. Now, as all roots are of a spongy nature, to receive the juices of the earth for the nourishment and growth of the tree, that tree must necessarily grow the fastest whose root is most spongy and porous; and therefore the true English Elm, being set upon the root of the Wych, a greater quantity of nutriment is received from the earth for its encrease, in proportion as the root of the Wych Elm is more spongy and porous than that of its own sort. Thus the English Elm, on this basis, will arrive at timber many years sooner than those raised by layers, and be also forced to a greater size. If we consider too that the roots of the Wych Elm will imbibe such juices as are proper for the growth of its own sorts, timber thus raised must be better, as the wood of the Wych Elm is so excellent in its kind as to answer the purposes of all the other kinds."

See more of the ELM under WOODLANDS.

ZANTHOXYLUM.

LINNEAN Class and Order, *Dioecia Pentandria:* Male flowers containing five parts, and female flowers containing one part; upon distinct plants. There are two SPECIES; one of which, with due care, may be enured to this climate:

ZANTHO'XYLUM *Clava Her'culis:* The TOOTHACHE TREE; *a deciduous shrub;* native of Jamaica, Carolina, and Pennsylvania.

The TOOTHACHE TREE (so called from its bark being said to be efficacious in that complaint) will grow to the height of about twelve feet. The bark is rough, and armed with short thick spines. The leaves are its greatest ornament: for they are pinnated, are of a fine dark green on their upper surface, and yellowish underneath, and grow without order on the branches. The folioles are spear-shaped, long; four or five pair are terminated by an odd one, and the whole leaf has much the resemblance of those of the Mastich Tree. The flowers come out in loose panicles, from the ends of the branches; they are small, and of little figure, having no petals, though the coloured segments of the calyx have been taken for petals. They are succeeded by roundish capsules, containing the seeds, which hardly ever ripen in England.

There is a *Variety* of this genus, with leaves composed of oval, oblong folioles, which have prickly midribs. This difference is permanent from seeds. They are numbered in the nursery as two distinct sorts; the first is called the Lentiscus-leaved Toothache Tree; the other the Ash-leaved Toothache Tree.

These Trees are PROPAGATED from the seeds, which we receive from abroad; and these are seldom less than two, and often three or four, years before they come up. They must be sown deep, in largish pots, filled with a good, light, sandy compost; and after that, the pots may be plunged into some natural soil, in a shady place, and there left undisturbed, except having constant weeding, during the next summer and winter. The spring following they may be taken up and plunged into a hotbed; and this will bring up many of the seeds. They must be next hardened by degrees; and afterwards plunged into their former station, to remain there until autumn. In the ensuing winter they must be preserved in the greenhouse, or under a hotbed frame; and in the spring they should have a hotbed as before; and then you may expect to see the remainder of the whole crop. The same management must be repeated until the spring following, when they must be all shaken out of the pots, and each be planted in a separate pot. Watering should be given them, to settle the mould to the roots; and they should be plunged into a hotbed as before. After this they must be hardened to the air, and set abroad in a shady place. The plants are now raised; but they should be treated as greenhouse plants for two or three years after; when, in some spring, they may be turned out of their pots, with their mould, into the places where they are designed to remain. The places allotted them should be naturally warm and well sheltered; for although they are tolerably hardy when old, they require protection at first; and with this, nothing but the severest winters can destroy them.

A
CLASSICAL ARRANGEMENT
OF
TREES AND SHRUBS,
AGREEABLY TO THEIR RESPECTIVE HEIGHTS.

In forming mixed ornamental Plantations, it is necessary to arrange the Plants, according to the Heights to which they severally rise, in a given climature. If low Shrubs be planted promiscuously, among Forest Trees, the latter quickly rise above them; first hiding, and at length overgrowing them. On the contrary, if the taller Plants be placed in the inward or central parts of the mass of planting, and the lower, outwardly towards the margin, all the plants enjoy air and head-room; and form, collectively, a rich bank of foliage.

Perceiving, in practice, the utility of listing the given plants, agreeably to their respective growths (see Vol. I. Min. 8 and 11.) we have caused a general Analysis of the Plants treated of in this Volume to be made, with respect to height, and have endeavoured to class them, according to their several growths, in this country.

An accuracy of arrangement cannot reasonably be expected, in a *first attempt*[*] of this nature; the heights to which many exotics rise in this island, are imperfectly known: nor is a critical exactness, in this case, requisite.

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[*] 1803. When the above was written, we were not aware that a similar attempt had been made by James Meader, in the Planter's Guide, published in 1779.

It is not an even surface of foliage, like what we see in Conservatories, we ask for in Grounds. Even if it were, it would be difficult to produce it. Soil, aspect, and the habits of individual plants, ever tend to occasion an inequality of growth, and a desirable variety of surface: a slight error in the Classification will only tend to increase this Variety.

To give character and perspicuity to the arrangement, we have distributed the Plants in the following CLASSES.

I. TALL TREES,—or such as rise, in suitable soils and situations, to *sixty feet or upwards.*

II. MIDDLERANK TREES,—or such as usually rise to *between forty and sixty feet.*

III. LOW TREES, of *thirty to forty feet* growth.

IV. VERY TALL SHRUBS; namely, those from *twenty to thirty feet.*

V. TALL SHRUBS, as from *twenty down to twelve feet high.*

VI. MIDDLERANK SHRUBS, between *twelve and six feet in height.*

VII. LOW SHRUBS, between *six and three feet.*

VIII. VERY LOW SHRUBS; namely, those *under three feet growth.*

CLASS THE FIRST.

TALL TREES.

	PAGE	
A'cer Pseudo-pla'tanus	2	Sycamore
Æ'sculus Hippo-ca'stanum	8	Horsechesnut
Fa'gus Sylva'tica	125	Beech
Fa'gus Casta'nea	127	Chesnut
Fra'xinus Exce'lsior	132	Ash
Pi'nus La'rix	249	Larch
Pi'nus Sylve'stris	252	Scotch Fir
Pi'nus Sylve'stris	252	Pinaster
Pi'nus Stro'bus	253	Weymouth Pine
Pi'nus Pi'cea	261	Silver Fir
Pi'nus Pi'cea	261	Balm of Gilead Fir
Pi'nus A'bies	263	Norway Spruce
Pi'nus A'bies	264	Cornish Spruce
Pi'nus Canade'nsis	264	American Spruce
Pla'tanus Orienta'lis	270	Oriental Plane
Pla'tanus Occidenta'lis	271	American Plane
Pla'tanus Occidenta'lis	271	Maple-leaved Plane
Pla'tanus Occidenta'lis	272	Spanish Plane
Po'pulus Ni'gra	274	Common Poplar
Po'pulus Ni'gra	274	Lombardy Poplar
Po'pulus Tre'mula	274	Asp
Po'pulus Heterophy'lla	277	Virginia Poplar
Que'rcus Ro'bur	298	English Oak
Que'rcus Ru'bra	304	Red Virginia Oak
Que'rcus Æ'gilops	305	Spanish Oak
Ti'lia Europæ'a	402	European Lime
U'lmus Campe'stris	426	Coarse-leaved Elm
U'lmus Campe'stris	429	Fine-leaved Elm

CLASS THE SECOND.

MIDDLERANK TREES.

A'cer Negu'ndo	3	Ash-leaved Maple
A'cer Platanoi'des	3	Norway Maple
A'cer Sacchari'num	4	Sugar Maple
A'cer Ru'brum	4	Scarlet Maple
Be'tula A'lba	34	Common Birch
Be'tula Ni'gra	35	Black Birch
Be'tula Le'nta	36	Canada Birch
Be'tula A'lnus	37	Alder
Ca'rpinus Be'tulus	51	Common Hornbeam
Ce'ltis Austra'lis	58	Southern Celtis
Ce'ltis Occidenta'lis	58	Western Celtis
Cratæ'gus Tormina'lis	96	Wild Service
Fra'xinus America'na	136	American Ash
Ju'glans Re'gia	170	Common Walnut
Ju'glans Ni'gra	173	Black Virginia Walnut
Ju'glans A'lba	174	White Virginia Walnut
Ju'glans Cine'rea	174	Pennsylvania Walnut
Liriode'ndron Tulipi'fera	198	Tulip Tree
Pi'nus Pi'nea	254	Stone Pine
Pi'nus Ce'mbra	256	Cembro Pine
Pi'nus Tæ'da	256	Swamp Pine
Pi'nus Ce'drus	258	Cedar of Lebanon
Po'pulus A'lba	274	White Poplar
Po'pulus Balsami'fera	275	Balsam Poplar
Pru'nus A'vium	284	Wild Red Cherry
Pru'nus Ce'rasus	283	Cherry Tree
Pru'nus Ce'rasus	284	Red Flowering Cherry
Py'rus Commu'nis	294	Double-blossomed Pear
Py'rus Commu'nis	294	Twice-flowering Pear
Que'rcus Pri'nus	304	Chesnut-leaved Oak
Que'rcus Phe'llos	303	Willow-leaved Oak
Que'rcus A'lba	305	White Oak
Que'rcus Ce'rris	306	Austrian Oak
Robi'nia Pseudaca'cia	332	False Acacia

Sa'lix A'lba	354	White Willow
Sa'lix Purpu'rea	355	Purple Willow
Sa'lix Penta'ndria	355	Sweet-scented Willow
Sa'lix Hermaphrodi'tica	356	Shining Willow
Sa'lix Babylo'nica	355	Weeping Willow
Sa'lix Tria'ndria	356	Triandrous Willow
Sa'lix Fra'gilis	357	Crack Willow
Sa'lix Amygdali'na	356	Almond-leaved Willow
Sa'lix Hasta'ta	357	Hastated Willow
Ta'xus Bacca'ta	395	Yew
Ti'lia America'na	404	American Lime

CLASS THE THIRD.

LOW TREES.

A'cer Campe'stre	2	Common Maple
A'ccr Monspesula'num	3	Montpelier Maple
A'cer Cre'ticum	4	Cretan Maple
A'cer Tarta'ricum	4	Tartarian Maple
A'cer Ru'brum	4	Scarlet Maple
Amy'gdalus Commu'nis	13	Common Almond
Amy'gdalus Pe'rsica	14	Peach Tree
Bigno'nia Cata'lpa	39	Catalpa
Ca'rpinus Be'tulus	53	Flowering Hornbeam
Ca'rpinus Be'tulus	53	American Hornbeam
Ca'rpinus O'strya	53	Hop Hornbeam
Ce'rcis Siliqua'strum	61.	Common Judas Tree
Ce'rcis Canade'nsis	62	Canadian Judas Tree
Cratæ'gus Oxyaca'ntha	91	Hawthorn
Cratæ'gus A'ria	95	White Leaf
Cupre'ssus Sempervi'rens	99	Common Cypress
Cupre'ssus Sempervi'rens	99	Upright Cypress
Cupre'ssus Sempervi'rens	100	Spreading Cypress
Cupre'ssus Sempervi'rens	100	Small-fruited Cypress
Cupre'ssus Juni'perus	101	African Cypress

Cupre'ssus Di'sticha	102	Deciduous Cypress
Cy'tisus Labu'rnum	106	Laburnum
Dio'spyros Lo'tus	116	Indian Date Plum
Fra'xinus Or'nus	135	Flowering Ash
Gledi'tsia Triaca'nthus	142	Gleditsia
I'lex Aqui'folium	162	Common Holly
I'lex Aquifo'lium	165	Smooth-leaved Holly
I'lex Aquifo'lium	165	Box-leaved Holly
I'lex Aquifo'lium	166	Saw-leaved Holly
I'lex Aquifo'lium	166	Hedgehog Holly
I'lex Cassi'ne	167	Dohoon Holly
Liquida'mber Styraci'flua	195	Virginia Liquidamber
Liquida'mberPeregri'num	196	Canada Liquidamber
Magno'lia Grandiflo'ra	213	Evergreen Magnolia
Me'lia Aze'darach	218	Bead Tree
Me'spilus Germa'nica	223	German Medlar
Mo'rus A'lba	227	Silkworm Mulberry
Mo'rus Ni'gra	228	Garden Mulberry
Mo'rus Papyri'fera	228	Paper Mulberry
Mo'rus Ru'bra	229	Virginia Mulberry
Ny'ssa Aqua'tica	235	Serrated Tupelo Tree
Pi'nus Tæ'da	258	Dwarf Pine
Pi'nus Balsa'mea	265	Hemlock Fir
Pi'nus Orienta'lis	265	Oriental Fir
Py'rus Ma'lus	295	Fig Apple
Py'rus Corona'ria	295	Sweet-scented Crab
Pru'nus Pa'dus	281	Common Bird's Cherry
Pru'nus Pa'dus	282	Virginia Padus
Pru'nus Ce'rasus	284	Double-blossomed Cherry
Pru'nus Armeni'aca	288	Apricot Tree
Pru'nus Dome'stica	288	Plum Tree
Pru'nus Dome'stica	285	Cherry Plum Tree
Pru'nus Dome'stica	285	Double-blossomed Plum
Que'rcus Ni'gra	304	Black Oak
Que'rcus Æ'sculus	305	Italian Oak
Que'rcus Su'ber	307	Broad-leaved Cork Tree
Que'rcus Su'ber	307	Narrow-leaved Cork Tree
Que'rcus I'lex	308	Ilex
Que'rcus Cocci'fera	309	Kermes Oak
Que'rcus Molu'cca	309	Live Oak
Robi'nia Hi'spida	333	Rose-flowered Acacia
Sa'lix Vitelli'na	355	Golden Willow

Sa'lix Phylicifo'lia	356	Phylica-leaved Willow
Sa'lix He'lix	357	Rose Willow
Sa'lix Ca'prea	358	Sallow
Sa'lix Glau'ca	358	Glaucous Willow
Sa'lix Vimina'lis	358	Ozier
So'rbus Aucupa'ria	369	Mountain Sorb
So'rbus Dome'stica	370	Cultivated Sorb
So'rbus Hy'brida	371	Mongrel Sorb

CLASS THE FOURTH.

VERY TALL SHRUBS.

A'cer Pennsylva'ticum	5	Mountain Maple
Æ'sculus Pa'via	9	Scarlet Esculus
Anno'na Trilo'ba	18	Papaw
Arbu'tus Une'do	23	Oblong-fruited Arbutus
Arbu'tus Une'do	24	Red-flowered Arbutus
Arbu'tus Une'do	24	Double-blossomed Arbutus
Arbu'tus Andra'chne	26	Andrackny
Bu'xus Sempervi'rens	45	Broad-leaved Tree Box
Bu'xus Sempervi'rens	45	Narrow-leaved Tree Box
Co'rnus Ma'scula	83	Cornelian Cherry
Co'rylus Avella'na	89	Hazel
Cratæ'gus Oxyaca'ntha	93	Scarlet Hawthorn
Cratæ'gus Oxyaca'ntha	94	Yellow Hawthorn
Cratæ'gus Oxyaca'ntha	94	White Hawthorn
Cratæ'gus Oxyaca'ntha	94	Maple-leaved Hawthorn
Cratæ'gus Oxyaca'ntha	94	Double-bloss. Hawthorn
Cratæ'gus Oxyaca'ntha	94	Glastonbury Thorn
Cratæ'gus Crus Ga'lli	96	Cockspur Hawthorn
Dio'spyros Virginia'na	117	Pishamin Plum
Elæa'gnus Angustifo'lia	118	Narrow-leaved Eleagnus
Euo'nymus Europæ'us	123	Broad-leaved Spindle
Fra'xinus O'rnus	136	Dwarf Ash
Fra'xinus America'na	136	Manna Ash
Guilandi'na Dio'ica	148	Canada Nickar Tree

Juni'perus Commu'nis	176	Sweedish Juniper
Juni'perus Oxyce'drus	177	Spanish Juniper
Juni'perus Virginia'na	177	Virginia Cedar
Juni'perus Bermudia'na	177	Bermudian Cedar
Juni'perus Barbade'nsis	178	Jamaica Cedar
Juni'perus Thuri'fera	178	Spanish Cedar
Juni'perus Ly'cia	178	Lycian Cedar
Juni'perus Phœni'cia	178	Phenician Cedar
Lau'rus No'bilis	187	Evergreen Bay
Lau'rus Be'nzoin	190	Benzoin Tree
Lau'rus Sa'ssafras	190	Sassafras Tree
Magno'lia Acumina'ta	210	Long-leaved Magnolia
Magno'lia Tripe'tala	210	Umbrella Tree
Ny'ssa Aqua'tica	234	Entire-leaved Tupelo Tree
Pista'cia Terebi'nthus	267	Common Turpentine Tree
Pista'cia Ve'ra	268	Pistacia Nut Tree
Pista'cia Trifo'lia	268	Three-leaved Pistacia
Pista'cia Narbone'nsis	268	Larger-fruited Pistacia
Py'rus Cydo'nia	296	Quince
Pru'nus Canade'nsis	282	Canada Padus
Pru'nus Insiti'tia	286	Bullace Tree
Pru'nus Lauro-Ce'rasus	286	Common Laurel
Pru'nus Lusita'nica	287	Portugal Laurel
Rha'mnus Catha'rticus	312	Common Buckthorn
Rha'mnus Fra'ngula	313	Frangula
Rha'mnus Paliu'rus	314	Christi Thorn
Rha'mnus Alate'rnus	316	Common Alaternus
Rha'mnus Alate'rnus	317	Broad-leaved Alaternus
Rha'mnus Alate'rnus	317	Jagged-leaved Alaternus
Sambu'cus Ni'gra	361	Common Black Elder
Sambu'cus Ni'gra	361	White-berried Elder
Sambu'cus Ni'gra	362	Green-berried Elder
Sambu'cus Ni'gra	362	Parsley-leaved Elder
Syri'nga Vulga'ris	388	Common Lilac
Syri'nga Vulga'ris	388	Purple Lilac
Syri'nga Vulga'ris	389	Blue Lilac
Syri'nga Vulga'ris	389	White Lilac
Thu'ya Occidenta'lis	398	Common Arbor Vitæ
Thu'ya Orienta'lis	401	Chinese Arbor Vitæ
Vibu'rnum La'ntana	406	Common Viburnum
Vibu'rnum O'pulus	408	Marsh Elder
Vibu'rnum O'pulus	409	Gelder Rose

CLASS THE FIFTH.

TALL SHRUBS.

Anagy'ris Fœ'tida	15	Anagyris
Ara'lia Spino'sa	20	Prickly Angelica
Azale'a Nudiflo'ra	30	Red Azalea
Bu'xus Sempervi'rens	46	Gold-edged Box
Bu'xus Sempervi'rens	46	Curled-leaved Striped Box
Ca'rpinus Be'tulus	53	Eastern Hornbeam
Ce'ltis Orienta'lis	60	Eastern Celtis
Chiona'nthus Virgi'nica	64	Snowdrop Tree
Colute'a Arbore'scens	81	Common Bladder Senna
Colute'a Arbore'scens	82	Red-podded Bladder Senna
Co'rnus Sangui'nea	83	Common Dogwood
Co'rnus Flo'rida	83	Virginian Dogwood
Co'rnus Flo'rida	84	Female Dogwood
Co'rnus Flo'rida	84	Blue-berried Dogwood
Co'rnus Flo'rida	84	White-berried Dogwood
Co'rnus Flo'rida	84	Swamp Dogwood
Cratæ'gus Aza'rolus	95	Azarole
Cratæ'gus Cocci'nea	96	Virginian Azarole
Cupre'ssus Thyo'ides	100	American Cypress
Euo'nymus Europæ'us	122	Common Euonymus
Euo'nymus Europæ'us	122	Narrow-leaved Euonymus
Fa'gus Pu'mila	131	Dwarf Chesnut
Hi'ppophæ Rhamno'ides	155	European Sea Buckthorn
Hi'ppophæ Canade'nsis	156	Canada Sea Buckthorn
Juni'perus Commu'nis	176	Common Juniper
Juni'perus Sabi'na	180	Upright Savin
Lau'rus Æstiva'lis	189	Deciduous Bay
Ligu'strum Vulga're	193	Privet
Ligu'strum Vulga're	193	Deciduous Privet
Ligu'strum Vulga're	194	Evergreen Privet
Magno'lia Glau'ca	210	Sea-green Magnolia
Me'spilus Arbutifo'lia	223	Arbutus-leaved Medlar
Philade'lphus Inodo'rus	242	Carolina Syringa
Phillyre'a Me'dia	243	Smooth-leaved Phillyrea
Phillyre'a Me'dia	243	Privet-leaved Phillyrea
Phillyre'a Me'dia	244	Olive-leaved Phillyrea
Phillyre'a Latifo'lia	244	Broad-leaved Phillyrea

Phillyre'a Angustifo'lia	244	Narrow-leaved Phillyrea
Ptele'a Trifolia'to	291	Ptelea
Pru'nus Maha'leb	283	Perfumed Cherry
Pru'nus Spino'sa	286	Sloe Tree
Py'rus Ma'lus	294	Paradise Apple
Py'rus Corona'ria	295	Sub-evergreen Crab
Rha'mnus Alpi'nus	314	Alpine Frangula
Rha'mnus Fra'ngula	314	Smooth-leaved Frangula
Rha'mnus Oleo'ides	318	Olive-leaved Buckthorn
Rha'mnus Insecto'rius	318	Narrow-leaved Buckthorn
Rhus Coria'ria	325	Tanners' Sumach
Rhus Ty'phinum	326	Virginia Sumach
Rhus Ty'phinum	326	Stag's Horn Sumach
Rhus Gla'brum	327	Smooth Sumach
Rhus Gla'brum	327	New England Sumach
Rhus Gla'brum	327	Carolina Sumach
Rhus Gla'brum	327	Canada Sumach
Rhus Coppa'llinum	328	Canada Lentisc. Sumach
Rhus Co'tinus	330	Venetian Sumach
Sambu'cus Racemo'sa	363	Mountain Elder
Spa'rtium Ju'nceum	373	Common Spanish Broom
Spa'rtium Ju'nceum	373	Double Spanish Broom
Sty'rax Officina'lis	386	Styrax
Ta'marix Ga'llica	392	French Tamarisk
Vibu'rnum Denta'tum	407	Saw-leaved Viburnum
Vibu'rnum Nu'dum	408	Entire-leaved Viburnum
Vibu'rnum Prunifo'lium	408	Plum-leaved Viburnum
Vibu'rnum Acerifo'lium	410	Maple-leaved Viburnum
Zantho'xylum Cla'va H.	434	Toothache Tree

CLASS THE SIXTH.

MIDDLERANK SHRUBS.

Amo'rpha Frutico'sa	11	Amorpha
Be'rberis Vulga'ris	31	Common Berbery
Be'rberis Cre'tica	32	Box-leaved Berbery
Bupleu'rum Frutico'sum	43	Ethiopian Hartwort
Colute'a Arbore'scens	81	Pocock's Bladder Senna

Cratæ'gus Tomento'sa	97	Gooseberry-lea. Hawthorn
Cratæ'gus Vi'ridis	97	Green-leaved Hawthorn
Cy'tisus Hirsu'tus	108	Evergreen Cytisus
Euo'nymus America'nus	124	Evergreen Euonymus
Geni'sta Tridenta'ta	139	Portugal Broom
Geni'sta Hispa'nica	141	Prickly Spanish Broom
Hype'ricum Canarie'nse	159	Canary St. John's Wort
Lavate'ra Arbo'rea	184	Common Lavatera
Lonice'ra Xylo'steum	206	Fly Honeysuckle
Medica'go Arbo'rea	215	Tree Lucerne
Me'spilus Cotonea'ster	224	Dwarf Quince
Philade'lphus Corona'rius	241	Common Mock Orange
Pri'nos Verticilla'tus	279	Deciduous Winterberry
Pri'nos Gla'ber	279	Evergreen Winterberry
Rhodode'ndron Ma'ximum	323	Mountain Laurel
Rhus Toxicode'ndron	328	Poison Ash
Robi'nia Cara'gana	333	Caragana
Robi'nia Frute'scens	333	Shruby Aspalathus
Ro'sa Cinnamo'mia	338	Cinnamon Rose
Ro'sa Cinnamo'mia	339	Cinnamon Rose
Ro'sa Carolina	339	Carolina Rose
Ro'sa Caroli'na	339	Wild Virginian Rose
Ro'sa Centifo'lia	341	Great Royal Rose
Sambu'cus Canade'nsis	362	American Elder
Spa'rtium Scopa'rium	372	English Broom
Spa'rtium Monospe'rmum	374	Single-seeded Broom
Spa'rtium Angula'tum	374	Eastern Broom
Spa'rtium Spino'sum	375	Thorny Broom
Spa'rtium Sco'rpius	375	Prickly Broom
Spiræ'a Opulifo'lia	379	Virginia Gelder Rose
Spiræ'a Opulifo'lia	380	Carolina Gelder Rose
Staphyle'a Pinna'ta	382	Common Staphylea
Staphyle'a Trifo'lia	382	Trifoliate Staphylea
Stewa'rtia Malacode'ndron	384	Stewartia
Syri'nga Pe'rsica	390	Common Persian Lilac
Syri'nga Pe'rsica	390	White Persian Lilac
Syri'nga Pe'rsica	391	Blue Persian Lilac
Syri'nga Pe'rsica	391	Cut-leaved Persian Lilac
Ta'marix Germa'nica	393	German Tamarisk
Vibu'rnum Cassinoi'des	410	Bastard Cassine
Vibu'rnum Ti'nus	412	Narrow-leaved Laurustinus
Vibu'rnum Ti'nus	412	Broad-leaved Laurustinus
Vi'tex Agnus-ca'stus	419	Chaste Tree
U'lex Europæ'us	423	Furze

CLASS THE SEVENTH.

LOW SHRUBS.

Amy'gdalus Na'na	14	Dwarf Almond
Andro'meda Panicula'ta	16	Virginian Andromeda
Artemi'sia Arbore'scens	27	Tree Wormwood
A'triplex Ha'limus	28	Broad-leav. Purslain Tree
A'triplex Portulaco'ides	28	Narrow-leav. Purslain Tree
Azale'a Visco'sa	30	White Azalea
Callica'rpa America'na	48	Callicarpa
Calyca'nthus Flo'ridus	49	Flowering Calycanthus
Ceano'thus America'na	54	New Jersey Tea
Cela'strus Bulla'tus	56	Staff Tree
Cephala'nthus Occide'ntalis	60	Cephalanthus
Ci'stus Populifo'lius	67	Poplar-leaved Cistus
Ci'stus Laurifo'lius	67	Bay-leaved Cistus
Ci'stus Ladani'ferus	67	Ladanum Cistus
Ci'stus Inca'nus	68	Hoary Cistus
Ci'stus Monspelie'nsis	69	Gum Cistus of Montpelier
Ci'stus A'lbidus	69	White Cistus
Ci'stus Salvifo'lius	69	Sage-leaved Cistus
Ci'stus Cri'spus	69	Curled-leaved Cistus
Ci'stus Halimifo'lius	69	Sea Purslain-leaved Cistus
Ci'stus Villo'sus	70	Round-leaved Cistus
Ci'stus Cre'ticus	70	Cretan Cistus
Ci'stus Libano'tis	70	Narrow-leaved Cistus
Cle'thra Alnifo'lia	78	American Alder
Cneo'rum Trico'ccon	79	Widow Wail
Colute'a Arbore'scens	81	Oriental Colutea
Coria'ria Myrtifo'lia	85	Myrtle-leaved Sumach
Coroni'lla E'merus	87	Scorpion Senna
Co'rylus Colu'rna	89	Byzantine Nut
Cy'tisus Sessilifo'lius	105	Sessile-leaved Cytisus
Cy'tisus Ni'gricans	106	Black Cytisus
Cy'tisus Austri'acus	106	Tartarian Cytisus
E'phedra Dista'chya	120	Ephedra
Geni'sta Pilo'sa	140	Branching Broom

Geni'sta Germa'nica	141	German Broom
Geni'sta Ca'ndicans	141	Italian Broom
Hamame'lis Virgi'nica	149	Dwarf Hazel
Hibi'scus Syri'acus	153	Althea Frutex
Hydrange'a Arbore'scens	157	Hydrangea
Hype'ricum Hirci'num	158	Shruby St. John's Wort
Ite'a Virgi'nica	169	Itea
Juni'perus Sabi'na	179	Spreading Savin
Juni'perus Sabi'na	180	Variegated Savin
Ka'lmia Latifo'lia	182	Broad leaved Kalmia
Ka'lmia Angustifo'lia	182	Narrow-leaved Kalmia
Lavate'ra Trilo'ba	185	Three-lobed Layatera
Lavate'ra O'lbia	185	Five-lobed Lavatera
Lavate'ra Mi'cans	186	Glittering Lavatera
Lonice'ra Diervi'lla	204	Diervilla
Lonice'ra Symphorica'rpus	205	St. Peter's Wort
Lonice'ra Cæru'lea	206	Blue-berried Honeysuckle
Lonice'ra Alpige'na	206	Red-berried Honeysuckle
Lonice'ra Ni'gra	206	Black-berried Honeysuckle
Lonice'ra Pyrena'ica	206	Pyrenean Honeysuckle
Lonice'ra Tarta'rica	206	Tartarian Honeysuckle
Me'spilus Amela'nchier	223	Amelanchier
Me'spilus Canade'nsis	224	Canada Medlar
Me'spilus Chamæ-Me'sp.	224	Bastard Quince
Myri'ca Ceri'fera	232	Candleberry Myrtle
Myri'ca Ga'le	232	Sweet Gale
Philade'lphus Corona'rius	241	Double flow. Mock Orange
Phlo'mis Frutico'sa	246	Jerusalem Sage Tree
Phlo'mis Frutic'osa	247	Cretan Sage Tree
Phlo'mis Purpu'rea	247	Portugal Sage
Rha'mnus Catha'rticus	312	Dwarf Buckthorn
Rha'mnus Fr'angula	314	Dwarf Frangula
Rhodode'ndron Po'nticum	324	Pontic Rose Bay
Rhus Ty'phinum	327	Dwarf Sumach
Rhus Coppa'llinum	328	Lentiscus-leaved Sumach
Rhus Toxicode'ndron	329	Poison Oak
Rhus Ra'dicans	329	Radicant Toxicodendron
Ro'sa Cani'na	336	Dog Rose
Ro'sa Alpi'na	337	Alpine Rose
Ro'sa Eglante'ria	337	Common Sweet Briar
Ro'sa Eglante'ria	338	Semi-double Sweet Briar

Ro'sa Eglante'ria	338	Double Sweet Briar
Ro'sa Eglante'ria	338	Double Blush Sweet Briar
Ro'sa Eglante'ria	338	Yellow Sweet Briar
Ro'sa Caroli'na	340	Pennsylvania Rose
Ro'sa Villo'sa	340	Apple Rose
Ro'sa Centifo'lia	340	Hundred-leaved Rose
Ro'sa Centifo'lia	340	Provence Rose
Ro'sa Centifo'lia	341	Moss Provence
Ro'sa Centifo'lia	341	Dutch Hundred-leav. Rose
Ro'sa Ga'llica	342	Gallican Rose
Ro'sa Sempervi'rens	342	Musk Rose
Ro'sa Sempervi'rens	342	Single Musk Rose
Ro'sa Sempervi'rens	343	Double Musk Rose
Ro'sa Penduli'na	343	Pendulous-fruited Rose
Ro'sa A'lba	343	White Rose
Ru'scus Hypoglo'ssum	350	Alexandrian Laurel
Sa'lsola Frutico'sa	359	Stonecrop Tree
Spa'rtium Scopa'rium	373	Starry Broom
Spiræ'a Salicifo'lia	377	Common Spirea Frutex
Spiræ'a Tomento'sa	378	Red flowering Spirea
Spiræ'a Hypericifo'lia	378	Hypericum Spirea
Spiræ'a Crena'ta	379	Spanish Spirea
Spiræ'a Sorbifo'lia	380	Service-leaved Spirea
Vibu'rnum Ti'nus	412	Laurustinus
Vibu'rnum Ti'nus	413	Hairy-leaved Laurustinus
Vibu'rnum Ti'nus	413	Shining-leav. Laurustinus

CLASS THE EIGHTH.

VERY LOW SHRUBS

Andro'meda Panicula'ta	16	Canada Andromeda
Andro'meda Maria'na	17	Maryland Andromeda
Be'tula Na'na	36	Dwarf Birch
Bu'xus Sempervi'rens	47	Dwarf Box
Da'phne Meze'reum	110	Mezereon
Da'phne Gni'dium	112	Flax-leaved Daphne
Da'phne Cneo'rum	112	Spear-leaved Daphne

Dap'hne Tartonra'ira	112	Tarton Raire
Da'phne Alpi'na	112	Alpine Chamelea
Da'phne Thymelæ'a	112	Milkwort-leaved Daphne
Da'phne Villo'sa	113	Hairy-leaved Daphne
Da'phne Laure'ola	114	Evergreen Daphne
Geni'sta Tincto'ria	140	Dyers' Broom
Geni'sta A'nglica	140	Dwarf English Broom
Juni'perus Sabi'na	179	Spreading Savin
Ono'nis Frutico'sa	236	Rest Harrow
Philade'lphus Corona'rius	242	Dwarf Mock Orange
Rhodode'ndron Ferrug.	320	Ferrug. Dwarf Rose Bay
Rhodode'ndron Hirsu'tum	321	Hairy Dwarf Rose Bay
Rhodode'ndron Chamæci's.	321	Chamecistus
Rhodode'ndron Dau'ricum	321	Daurian Dwarf Rose Bay
Robi'nia Py'gmæa	334	Dwarf Aspalathus
Ro'sa Pimpinellifo'lia	336	Burnet Rose
Ro'sa Spinosi'ssima	336	Scotch Rose
Ru'bus Odora'tus	347	Virginia Raspberry
Ru'scus Aculea'tus	349	Common Butchers Broom
Ru'scus Hypophy'llum	349	Broad-leaved Ruscus
Ru'scus Hypoglo'ssum	350	Hypoglossum

☞ *It is proper to be remarked, that The* ALPHABET OF PLANTS *is printed agreeably to the first Edition. All that is* there *intended by noting the heights of the Species, at the heads of the Genera, is to give some general idea of their respective growths, and, most especially, as to whether they are* TREES *or* SHRUBS,*—without the trouble of consulting their several descriptions.* Here, *a greater degree of accuracy has been attempted.*

APPENDIX.

CLIMBERS.

Bigno'nia Sempervi'rens	40	Evergreen Bignonia
Bigno'nia U'nguis	41	Claw Bignonia
Bigno'nia Capreola'ta	42	Tendril Bignonia
Bigno'nia Ra'dicans	42	Scarlet Trumpet Flower
Cela'strus Sca'ndens	56	Climbing Staff Tree
Cle'matis Vitice'lla	73	Virgin's Bower
Cle'matis Vio'rna	74	Virginia Climber
Cle'matis Cri'spa	74	Carolina Climber
Cle'matis Orienta'lis	75	Oriental Climber
Cle'matis Vita'lba	75	Traveller's Joy
Cle'matis Cirrho'sa	76	Evergreen Clematis
Cle'matis Flammula	76	Creeping Clematis
Cle'matis Virginia'na	76	Sweet-scented Clematis
Cyna'nchum Acu'tum	103	Acute-leaved Cynanchum
Cyna'nchum Monsp.	104	Round-leaved Cynanchum
Cyna'nchum Subero'sum	104	Carolina Cynanchum
Glyci'ne Frute'scens	144	Carolina Kidney Bean
Glyci'ne A'pios	145	Ash-leaved Milk Vetch
Glyci'ne Tomento'sa	146	Climbing Rest Harrow
Glyci'ne Como'sa	146	Maryland Kidney Bean
Glyci'ne Mono'ica	147	Virginian Glycine
He'dera He'lix	150	Common Ivy
He'dera He'lix	152	Yellow-berried Ivy
He'dera He'lix	152	Gold-striped Ivy
He'dera He'lix	152	Silver-striped Ivy
He'dra Quinquefo'lia	152	Deciduous Ivy
Ja'sminum Officina'le	160	Common Jasmine
Ja'sminum Fruticans	161	Yellow Jasmine
Ja'sminum Humile	161	Italian Jasmine
Lonice'ra Caprifo'lium	200	Italian Honeysuckle

Lonice'ra Pericly'menum	201	English Honeysuckle
Lonice'ra Pericly'menum	202	Oak-leaved Honeysuckle
Lonice'ra Pericly'menum	202	Red Dutch Honeysuckle
Lonice'ra Pericly'menum	202	Midsummer Honeysuckle
Lonice'ra Pericly'menum	202	German Honeysuckle
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